avinashpranjul

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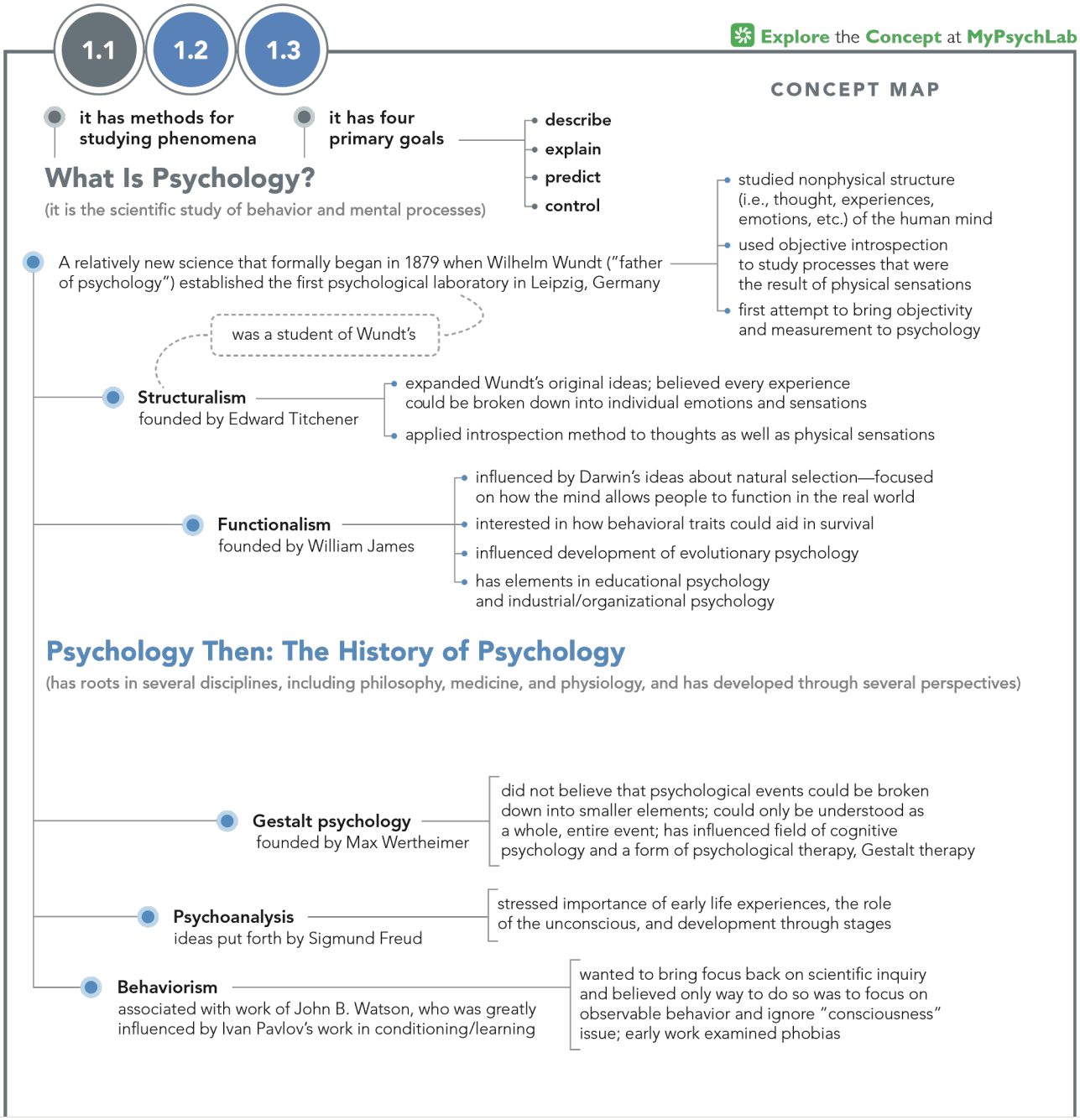
white rabbit from a distance while eating a food that he really liked. The pleasure of the food outweighed the fear of the faraway rabbit. Day by day, the situation was repeated with the rabbit being brought closer each time, until Peter was no longer afraid of the rabbit. Jones went on to become one of the early pioneers of behavior therapy. Behaviorism is still a major perspective in psychology today. It has also influenced the development of other perspectives, such as *cognitive psychology*.

1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 1.13 1.14


1.1
1.2
1.3
Explore the Concept at MyPsychLab
CONCEPT MAP
it has methods for studying phenomena
it has four primary goals
describe
explain
predict
control
What Is Psychology?
(it is the scientific study of behavior and mental processes)
A relatively new science that formally began in 1879 when Wilhelm Wundt ("father of psychology") established the first psychological laboratory in Leipzig, Germany
studied nonphysical structure (i.e., thought, experiences, emotions, etc.) of the human mind
used objective introspection to study processes that were the result of physical sensations
first attempt to bring objectivity and measurement to psychology
was a student of Wundt's
Structuralism
founded by Edward Titchener
expanded Wundt's original ideas; believed every experience could be broken down into individual emotions and sensations
applied introspection method to thoughts as well as physical sensations
Functionalism
founded by William James
influenced by Darwin's ideas about natural selection—focused on how the mind allows people to function in the real world
interested in how behavioral traits could aid in survival
influenced development of evolutionary psychology
has elements in educational psychology and industrial/organizational psychology
Psychology Then: The History of Psychology
(has roots in several disciplines, including philosophy, medicine, and physiology, and has developed through several perspectives)
Gestalt psychology
founded by Max Wertheimer
did not believe that psychological events could be broken down into smaller elements; could only be understood as a whole, entire event; has influenced field of cognitive psychology and a form of psychological therapy, Gestalt therapy
Psychoanalysis
ideas put forth by Sigmund Freud
stressed importance of early life experiences, the role of the unconscious, and development through stages
Behaviorism
associated with work of John B. Watson, who was greatly influenced by Ivan Pavlov's work in conditioning/learning
wanted to bring focus back on scientific inquiry and believed only way to do so was to focus on observable behavior and ignore "consciousness" issue; early work examined phobias

1.4 1.5

Explore the Concept at MyPsychLab

CONCEPT MAP

- **Psychodynamic** (based on Freud's theory) — focuses on the role of the unconscious mind and its influence on conscious behavior, early childhood experiences, development of sense of self, and other motivations
- **Behavioral** (based on early work of Watson and later B. F. Skinner) — focuses on how behavioral responses are learned through classical or operant conditioning
- **Humanistic** (two pioneers are Carl Rogers and Abraham Maslow) — focuses on human potential, free will, and possibility of self-actualization
- **Cognitive** (has roots in Gestalt psychology) — focuses on memory, intelligence, perception, thought processes, problem solving, language, and learning

## Psychology Now: Modern Perspectives

(no one single perspective is used to explain all human behavior and processes)

- **Sociocultural** — focuses on the behavior of individuals as the result of the presence (real or imagined) of other individuals, as part of groups, or as part of a larger culture
- **Biopsychological** — focuses on influences of hormones, brain structures and chemicals, disease, etc.; human and animal behavior is seen as a direct result of events in the body
- **Evolutionary** — focuses on the biological bases for universal mental characteristics, such as why we lie, how attractiveness influences mate selection, the universality of fear, and why we enjoy things like music and dance

## Psychological Professionals and Areas of Specialization

(people working in the field of psychology have a variety of training experiences and different focuses)

**psychologist**

- has a doctorate degree (Ph.D., Psy.D., or Ed.D.) and works with either humans or animals in a variety of settings based on the area of specialization
- must be licensed to practice independently; typically does not prescribe medications but can go through specialized training to do so in a few states

**psychiatrist**

- medical doctor who specializes in diagnosis and treatment of psychological disorders; can prescribe medication

**psychiatric social worker**

- has training in area of social work (M.S.W.) and often has a professional license to practice (L.C.S.W.)

## PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. Which of the following perspectives focuses on the biological bases of universal mental characteristics?
   **a.** humanistic
   **b.** behaviorial
   **c.** psychodynamic
   **d.** evolutionary
2. Which perspective offers the best explanation for schizophrenia?
   **a.** psychodynamic
   **b.** behaviorial
   **c.** biopsychological
   **d.** humanistic
3. Wesley has learned that if he cries with his mother in public, she will often get him a new toy or a piece of candy so as to quiet him. Which of the following perspectives explains Wesley's behavior?
   **a.** psychodynamic
   **b.** cognitive
   **c.** behaviorial
   **d.** biopsychological
4. Which perspective would a researcher be taking if she were studying a client's early childhood experiences and his resulting development of self?
   **a.** psychodynamic
   **b.** cognitive
   **c.** behaviorial
   **d.** evolutionary

(*continued*)

desired answer becomes obvious (often resulting in courtesy bias–type answers). For example, "Do you agree that the new procedures for registering for classes are too complicated?" is obviously looking for a confirmation, while "What is your opinion of the new procedures for registering for classes?" is much more open to differing responses. Even the order of questions in a survey matters: a question about how much should be spent on public safety might have a very different answer at the beginning of a survey than after a long list of questions about crimes and criminal activity.

1.6 1.7 1.8

Explore the Concept at MyPsychLab

CONCEPT MAP

**scientific method**
- perceiving the question about some empirical event for which you would like an explanation; can be derived from the goal of description: What is happening here?
- forming a hypothesis, a tentative explanation about an event
- testing the hypothesis by collecting data, analyzing results
- drawing conclusions about investigation's success or failure to explain event
- reporting your results; share exactly what, why, and how you did it, which provides means for replication

## Psychology: The Scientific Methodology

(psychology uses the scientific method to try to determine facts and reduce uncertainty)

**descriptive data collection methods**
- **naturalistic observation:** observe people or animals in natural environment
- **laboratory observation:** observe people or animals in laboratory setting
- **case studies:** individual is studied in greater detail, researchers try to learn everything they can about the individual
- **surveys:** ask questions about topic researchers are studying via telephone, Internet, or a questionnaire

(can lead to formation of hypotheses that can later be tested)

### PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. In the scientific method, the final step is
   - **a.** reporting your results.
   - **b.** perceiving a question.
   - **c.** drawing conclusions.
   - **d.** testing the hypothesis.
2. Which of the following is an example of observer bias?
   - **a.** You ask your fellow students to be participants in a study of adult memory.
   - **b.** You ask people from your church to participate in a study of family values.
   - **c.** You develop an opinion of what you expect to see in an experiment.
   - **d.** You allow a student to quit an experiment simply because he or she is bored.
3. The greatest advantage to using a case study is that
   - **a.** researchers can gather data from large groups of people.
   - **b.** there is a tremendous amount of detail that can be gathered.
   - **c.** it can help in forming a hypothesis which can later be tested.
   - **d.** it uses animals instead of humans and therefore does not endanger the subjects.
4. The main advantage of a survey is that
   - **a.** only a small number of subjects need to be accessed.
   - **b.** a large amount of data can be gathered.
   - **c.** the chance of experimenter error is removed.
   - **d.** subjects will not know if they are part of a control or experimental group.
5. By using _____, researchers can maximize the likelihood of a representative sample.
   - **a.** very few individuals from a larger group
   - **b.** random selection from a larger group
   - **c.** case studies
   - **d.** participant observation

THINKING CRITICALLY:
Let's assume that you want to find out if telepathy really exists. Would any of the descriptive methods for studying behavior be a good method to use in examining this question? Why or why not?

though, the focus is on avoiding exposing them to any *unnecessary* pain or suffering. So if surgery is part of the study, it is done under anesthesia. If the research animal must die for the effects of some drug or other treatment to be examined in a necropsy (autopsy performed on an animal), the death must be accomplished humanely. Animals are used in only about 7 percent of all psychological studies (Committee on Animal Research and Ethics, 2004).





Explore the Concept at MyPsychLab

CONCEPT MAP

**Correlations**
- is a measure of relationship between two or more variables (anything that can change or vary)
- produces a value called the *correlation coefficient* that represents both direction and strength of relationship
- does not prove causation—variables can be related but you can not assume that one of them causes the other to occur

**Experiments**
(the only research method that will allow researchers to determine the cause of a behavior by deliberately manipulating some variable and measuring changes in the variable of interest)
- **operational definition** specifically names the steps or procedures used to control or measure the variable in the experiment
  - independent variable is the variable that is manipulated, it is independent of anything participants do
  - dependent variable is the measure used to evaluate the manipulation of the independent variable
- **groups**
  - **experimental:** gets the independent variable or experimental manipulation
  - **control:** receives no treatment or treatment that should not have an effect
  - random assignment to conditions is the best way to assure control over extraneous variables or confounding variables, variables that interfere with each other, and/or on the variable of interest
- **hazards**
  - **placebo effect:** beliefs or expectations about a study can influence their behavior
  - **experimenter effect:** experimenter's biases can affect or influence participants' behavior
  - can be controlled through single-blind (participant "blind" to treatment/condition) and double-blind studies where the experimenter measuring the dependent variable does not know the treatment/condition associated with the data

**Ethics of Psychological Research**
(psychological scientists have a primary goal of protecting the health and welfare of their animal or human participants)

**guidelines for research with humans**
- rights and well-being of participants must be weighed against the study's value to science
- participants must be allowed to make an informed decision about participating (informed consent)
- deception must be justified
- participants may withdraw from the study at any time
- participants must be protected from risks or told explicitly of risks
- investigator must debrief participants, telling the true nature of the study and expectations of results
- data must remain confidential

**research with animals**
- any animal research is also covered by ethical considerations; primary focus is on avoiding any unnecessary pain or suffering
- why use animals?
  - some research questions are important but can be difficult or dangerous to answer with human participants
  - animals are easier to control
  - animals have shorter lives; easier to study long-term effects

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Explore the Concept at MyPsychLab

CONCEPT MAP

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adjustment is not working properly. Some of the drugs used to treat depression are called SSRIs (selective serotonin reuptake inhibitors). SSRIs block the reuptake of serotonin, leaving more serotonin available in the synapse to bind with receptor sites. Over several weeks, the individual's mood improves. Although the reason for this improvement is not as simple as once believed (i.e., low levels of serotonin = low levels of mood) or fully understood, SSRIs are effective for depression, anxiety, and obsessive-compulsive disorder (Hyman & Cohen, 2013; Julien et al., 2011, Stahl, 2013).

This section covered the neuron and how neurons communicate. The next section looks at the bigger picture—the nervous system itself.



2.1 2.2

Explore the Concept at MyPsychLab

## CONCEPT MAP

The nervous system is a network of cells that carries information to and from all parts of the body; **neuroscience** is the field of study that deals with the structure of the brain and components of the nervous system

### Neurons and Nerves

**brain is comprised of neurons and glial cells**

- **glial cells:** provide physical and metabolic support to neurons; communicate with other cells; specific types have stem cell-like properties
  - **oligodendrocytes:** produce myelin in the central nervous system
  - **Schwann cells:** produce myelin in the peripheral nervous system
    - myelin insulates axons and speeds up transmission of neural message
- **neurons:** specialized cells in nervous system; send and receive messages within that system
  - have specialized components
    - **dendrites**
    - **soma**
    - **axon**
      - axon terminals
  - have an electrical charge at rest—the resting potential
    - made possible by balance between ions in and outside of the cell
    - membrane is semipermeable; inside is negatively charged as compared to outside
    - change in the electrical charge can result in an action potential; cell fires; inside becomes positive relative to outside
      - fire in an all-or-none fashion
      - cell firing is dependent on sum of excitatory and inhibitory messages received by the cell
  - are affected by neurotransmitters (see Table 2.1); chemicals that have an effect on neurons
  - are separated by a gap called the synapse; when nerve impulse reaches axon terminals, neurotransmitter is released into synaptic space
    - neurotransmitters (NTs) move across synapse and activate ion channel receptor sites on adjacent cells; some NTs are agonistic/excitatory, others are antagonistic/inhibitory
    - neurotransmitter action stopped by exiting synapse; neurotransmitters end back up in the releasing cell through reuptake or broken down by enzymes

## PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. Which part of the neuron carries messages to other cells?
   **a.** axon **c.** soma
   **b.** dendrite **d.** myelin
2. Which one of the following is NOT a function of glial cells?
   **a.** getting nutrients to the neurons
   **b.** generating action potentials
   **c.** cleaning up the remains of dead neurons
   **d.** providing insulation
3. When a neuron's resting potential is occurring, the neuron is _____ charged on the inside.
   **a.** positively **c.** both positively and negatively
   **b.** negatively **d.** neutrally
4. Neurotransmitters must pass from an axon terminal to the next dendrite by crossing a fluid-filled space called the
   **a.** synaptic gap. **c.** neuron.
   **b.** reuptake inhibitor. **d.** glial cell.
5. The venom of a black widow spider acts like a(n) _____ by mimicking the effects of acetylcholine.
   **a.** agonist **c.** protagonist
   **b.** antagonist **d.** glial cell
6. Which of the following is associated with pain relief?
   **a.** acetylcholine **c.** serotonin
   **b.** glutamate **d.** endorphins

2.3 2.4 2.5

Explore the Concept at MyPsychLab

## CONCEPT MAP

### The Central Nervous System

(comprised of the brain and spinal cord)

- **brain** — true core of nervous system: takes information from senses, processes it, makes decisions, sends commands to rest of body
- **spinal cord** — long bundle of neurons that carries information to and away from the brain; helps control pain response
  - spinal cord reflexes involve several different neurons (sensory neurons, interneurons, and motor neurons)
  - spinal reflexes enable fast, often lifesaving, actions that do not require conscious thought

### The Peripheral Nervous System

(comprised of the nerves and neurons not contained in the brain and spinal cord; allows the brain and spinal cord to communicate with the sensory systems and to control the muscles and glands of the body; divided into somatic and autonomic nervous systems)

- **somatic nervous system** controls the voluntary muscles of the body; involves the sensory pathway (sensory neurons carrying information to spinal cord and/or brain) and the motor pathway (nerves that carry information to voluntary skeletal muscles)
- **autonomic nervous system** controls automatic functions of the body (organs, glands, involuntary muscles)
  - **sympathetic division:** "fight-or-flight" functions—reacts to stressful events and bodily arousal
  - **parasympathetic division:** "eat-drink-and-rest" functions—restores body to normal functioning after arousal and is responsible for day-to-day functioning of glands and organs

- **glands** are organs in the body that secrete chemicals; some affect functioning of the body but not behavior; others have widespread influence on the body and behavior

### Distant Connections: The Endocrine Glands

- **endocrine glands** secrete chemicals called *hormones* into bloodstream; affect behavior and emotions by influencing the activity of the brain and by controlling muscles and organs such as the heart, pancreas, and sex organs
  - **pituitary gland**
  - **pineal gland**
  - **thyroid gland**
  - **pancreas**
  - **gonads**
  - **adrenal glands**

## PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. If you touch a hot stove, your spinal cord can prompt you to withdraw your hand without having to send the message all the way to the brain. This is due to what scientists call
   **a.** the reflex arc.
   **b.** neuroplasticity.
   **c.** the parasympathetic nervous system.
   **d.** the sympathetic nervous system.
2. What is the process whereby the structure and function of brain cells change in response to trauma, damage, or even learning?
   **a.** shallow lesioning
   **b.** deep lesioning
   **c.** cell regeneration
   **d.** neuroplasticity
3. The neurons of the sensory pathway contain
   **a.** efferent neurons.
   **b.** afferent neurons.
   **c.** both efferent and afferent neurons.
   **d.** voluntary muscle fibers.
4. Yvonne's ability to reach for and pick up her book is largely due to the functions of the _____ pathway of the _____ nervous system.
   **a.** sensory; somatic
   **b.** motor; somatic
   **c.** autonomic; peripheral
   **d.** parasympathetic; autonomic
5. Which of the following would be active if you have just had an automobile accident?
   **a.** sympathetic division
   **b.** parasympathetic division
   **c.** somatic division
   **d.** motor division
6. Andrew has always been thin. In fact, he often seems to be able to eat whatever he wants without gaining weight. The doctor told his parents that Andrew's _____ gland is the cause of his fast metabolism.
   **a.** pituitary
   **b.** adrenal
   **c.** thyroid
   **d.** pancreas

2.6 2.7 2.8

Explore the Concept at MyPsychLab

CONCEPT MAP

- **older methods**
  - often relied on dissection techniques after death
  - unable to directly observe function
- **lesioning studies**
  - study animals or humans with brain damage; damage may be by accident, injury, or in animals, deliberate
  - brain areas can be studied according to the location of lesions (injured or destroyed areas) or through electrical stimulation (invasive or noninvasive)

## Looking Inside the Living Brain

(methods for studying the structures and/or activity of the living brain)

- **mapping structure**
  - **computed tomography (CT)**: based on X-ray technology; good for imaging brain structure, especially when there is metal in the body
  - **magnetic resonance imaging (MRI)**: superior spatial resolution for structure
- **mapping function**
  - **the electroencephalogram (EEG)**
    - has good temporal but relatively poor spatial resolution; records the electrical activity of the brain through the use of scalp electrodes; both spontaneous activity and event-related potentials (ERP) can be studied
    - activity can be classified according to frequency and morphology; traditional bands include delta, theta, alpha, and beta
  - **positron emission tomography (PET)**: used for imaging function; involves injection of a radioactive tracer that binds to glucose, records activity of cells that use radioactive glucose
  - **functional MRI (fMRI)**: image brain function through tracking changes in blood oxygen levels; increase in oxygen levels associated with increased functioning

- **the hindbrain**
  - medulla
  - pons
  - reticular formation
  - cerebellum
- **structures under the cortex**
  - **limbic system**
    - thalamus
    - hypothalamus
    - hippocampus
    - amygdala

## From the Bottom Up: The Structures of the Brain

### PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. Which of the following techniques analyzes blood oxygen levels to look at the functioning of the brain?
   **a.** EEG
   **b.** CT
   **c.** fMRI
   **d.** PET
2. Which brain structure allows us to pay attention to certain stimuli while ignoring others?
   **a.** medulla
   **b.** cerebellum
   **c.** reticular formation
   **d.** pons
3. Which brain structure relays incoming sensory information?
   **a.** thalamus
   **b.** hypothalamus
   **c.** reticular formation
   **d.** pons
4. If you were to develop a rare condition in which you were not able to remember to be afraid of certain situations, animals, or events, which part of the brain would most likely be damaged?
   **a.** cingulate cortex
   **b.** hypothalamus
   **c.** thalamus
   **d.** amygdala
5. If your roommate has a problem paying attention, it may be due to damage to this part of the limbic system.
   **a.** hippocampus
   **b.** hypothalamus
   **c.** cerebellum
   **d.** cingulate cortex

side might recognize someone's face, while the left side struggles to recall the person's name. People aren't really left- or right-brained, they are "whole-brained." Michael Gazzaniga was one of Roger Sperry's students, his collaborator, and is a long-time researcher in the area of brain asymmetry and cognitive neuroscience. Gazzaniga's continuing work in brain lateralization has led to insights of the integrated mind, and he continues to work in related areas including human consciousness, perception, and neuroethics (Gazzaniga, 2006, 2009).

**HANDEDNESS** The separate functions of the left and right sides of the brain are often confused with handedness, or the tendency to use one hand for most fine motor skills. While most right-handed people also have their left hemisphere in control of their other fine motor skills, such as speech, a few right-handers actually have their language functions in the right hemisphere, in spite of the dominance of the left hemisphere for controlling the right hand. Among left-handed people, there are also many who, although right-brain dominant for motor control, still have their language functions on the left side of the brain. Why? Unfortunately, there are far too many theories of why we use one hand over the other for us to cover in the scope of this text.

2.9 2.10 2.11

Explore the Concept at MyPsychLab

## CONCEPT MAP

## The Structures of the Brain (continued)

- **the cortex** — the outermost, wrinkled layer of the brain; comprised of left and right hemispheres, connected by corpus callosum; each hemisphere can be further divided into four lobes
  - **frontal lobes**
  - **temporal lobes**
  - **parietal lobes**
  - **occipital lobes**
- **the association areas of the cortex** — devoted to making connections between incoming sensory information and stored memories, images, and knowledge; damage to right association areas can result in spatial neglect where person fails to recognize the left side of the visual field
  - **Broca's area:** found in left frontal lobe; devoted to speech production; damage to this area can result in Broca's aphasia
  - **Wernicke's area:** found in the left temporal lobe; plays a role in understanding the meaning of words
- **the cerebral hemispheres** — some brain functions governed by one hemisphere more than the other; differences found due to work of various researchers (e.g., split-brain studies by both Sperry and Gazzaniga; work of Springer & Deutsch)
  - **left hemisphere** specializes in tasks that involve sequence and analysis (language, speech, handwriting, math)
  - **right hemisphere** processes information in a more global sense (perception; visualization; spatial perception; recognition of patterns, faces, and emotional expression)

## PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. What part of the brain can sometimes be referred to as the "rind" or outer covering?
   **a.** thalamus
   **b.** medulla
   **c.** corpus callosum
   **d.** cortex

2. In which of the following lobes of the cortex would you find the primary visual cortex?
   **a.** frontal
   **b.** temporal
   **c.** occipital
   **d.** parietal

ignored. In habituation, the sensory receptors are still responding to stimulation but the lower centers of the brain are not sending the signals from those receptors to the cortex. The process of sensory adaptation differs because the receptor cells *themselves* become less responsive to an unchanging stimulus—garbage odors included—and the receptors no longer send signals to the brain.

For example, when you eat, the food that you put in your mouth tastes strong at first, but as you keep eating the same thing, the taste does fade somewhat, doesn't it? Generally speaking, all of our senses are subject to sensory adaptation.

You might think, then, that if you stare at something long enough, it would also disappear, but the eyes are a little different. Even though the sensory receptors in the back of the eyes adapt to and become less responsive to a constant visual stimulus, under ordinary circumstances the eyes are never entirely still. There's a constant movement of the eyes, tiny little vibrations called "microsaccades" or "saccadic movements" that people don't consciously notice. These movements keep the eyes from adapting to what they see. (That's a good thing, because otherwise many students would no doubt go blind from staring off into space.)

3.1

Explore the Concept at MyPsychLab

## The ABCs of Sensation

CONCEPT MAP

- **sensation** — process by which information from the outside world enters the brain
  - related to the activation of receptors in the various sense organs
  - related to changes in physical stimuli
    - detected by sensory receptors
    - sometimes "ignored" through sensory adaptation or cognitive habituation

### PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. _____ involves the detection of physical stimuli from our environment and is made possible by the activation of specific receptor cells.
   **a.** Perception
   **b.** Sublimination
   **c.** Adaptation
   **d.** Sensation
2. The lowest level of stimulation that a person can consciously detect 50 percent of the time the stimulation is present is called
   **a.** absolute threshold.
   **b.** just noticeable difference.
   **c.** sensation.
   **d.** sensory adaptation.
3. After being in class for a while, _____ is a likely explanation for not hearing the sound of the lights buzzing above you until someone says something about it.
   **a.** accommodation
   **b.** adaptation
   **c.** sublimation
   **d.** habituation
4. You are drinking a strong cup of coffee that is particularly bitter. After a while, the coffee doesn't taste as strong as it did when you first tasted it. What has happened?
   **a.** sensory adaptation
   **b.** subliminal perception
   **c.** habituation
   **d.** perceptual defense

THINKING CRITICALLY:
Do you think subliminally presented stimuli could cause someone to buy a particular product? Why or why not?

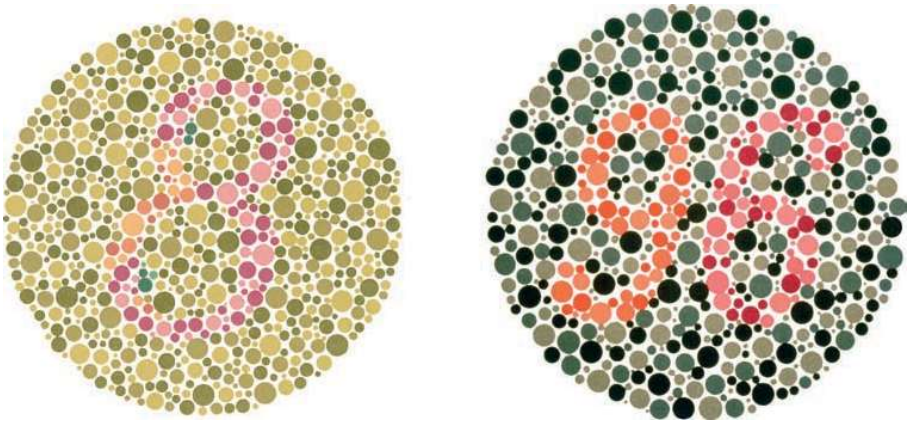


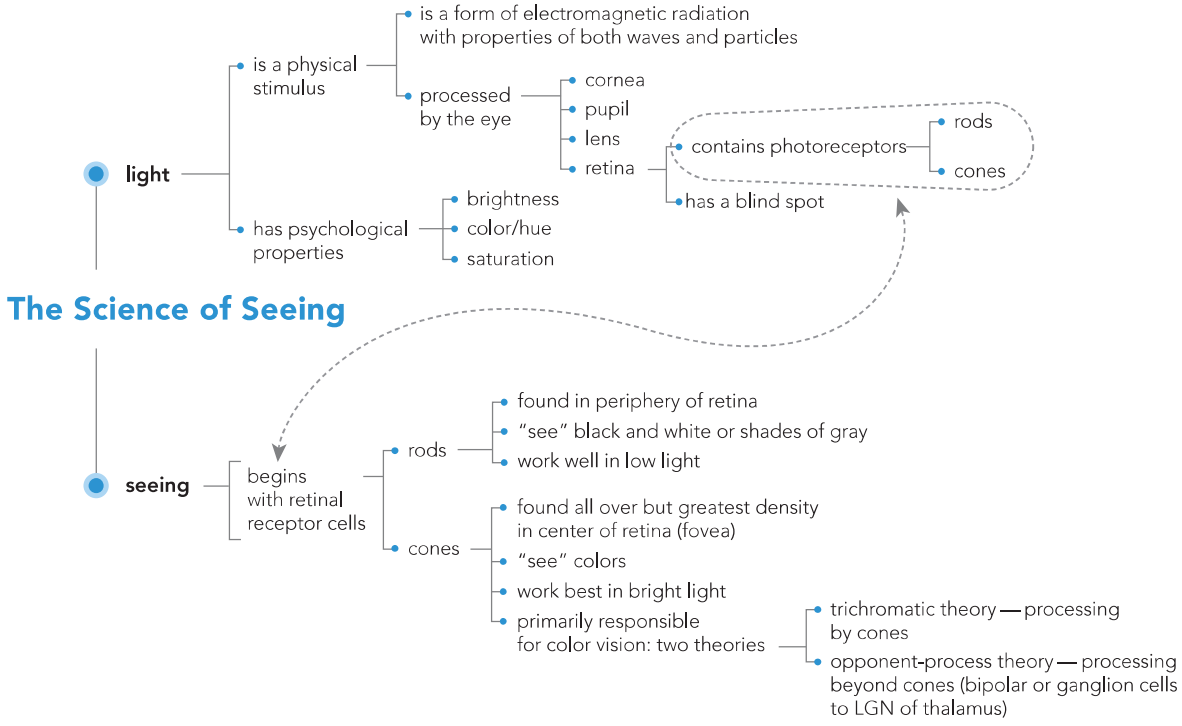
**Figure 3.7 The Ishihara Color Test**
In the circle on the left, the number 8 is visible only to those with normal color vision. In the circle on the right, people with normal vision will see the number 96, while those with red-green color blindness will see nothing but a circle of dots.

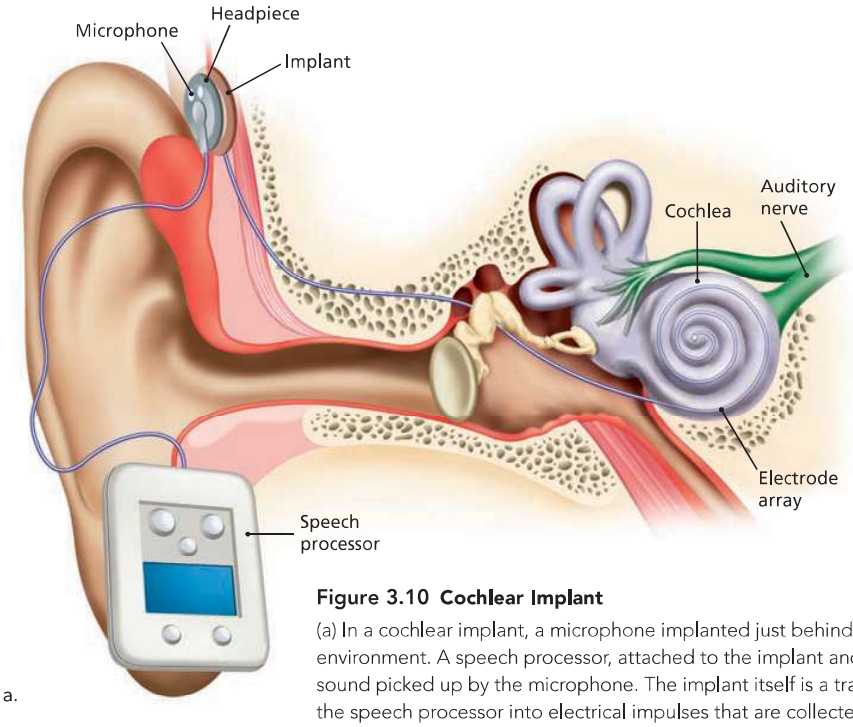
trait, you normally need two of the genes, one from each parent. LINK to Learning Objective 8.3. But the gene for color-deficient vision is attached to a particular chromosome (a package of genes) that helps to determine the sex of a person. Men have one X chromosome and one smaller Y chromosome (named for their shapes), whereas women have two X chromosomes. The smaller Y has fewer genes than the larger X, and one of the genes missing is the one that would suppress the gene for color-deficient vision. For a woman to have color-deficient vision, she must inherit two recessive genes, one from each parent, but a man only needs to inherit *one* recessive gene—the one passed on to him on his mother's X chromosome. His odds are greater; therefore, more males than females have color-deficient vision.

3.2 3.3

Explore the Concept at MyPsychLab

CONCEPT MAP






a.

b.

**Figure 3.10 Cochlear Implant**

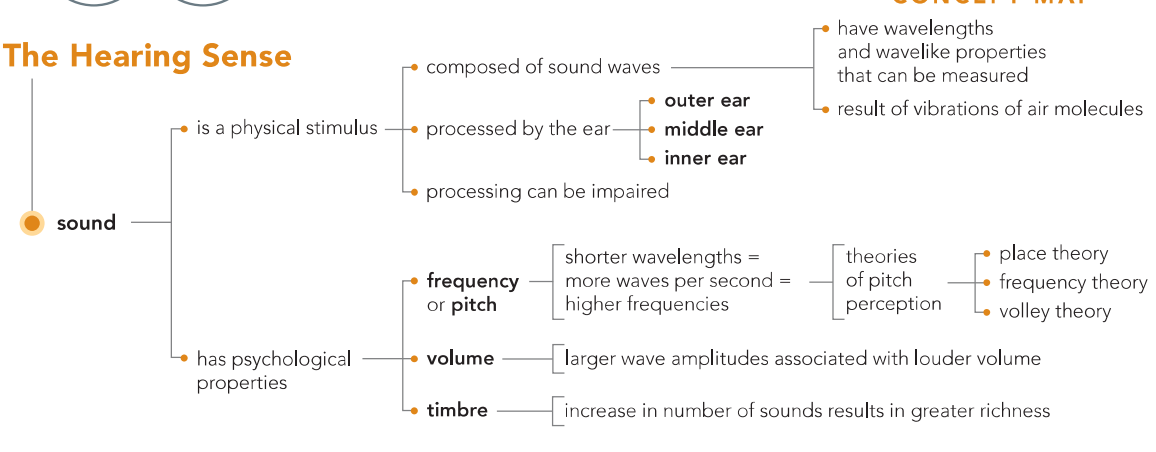
(a) In a cochlear implant, a microphone implanted just behind the ear picks up sound from the surrounding environment. A speech processor, attached to the implant and worn outside the body, selects and arranges the sound picked up by the microphone. The implant itself is a transmitter and receiver, converting the signals from the speech processor into electrical impulses that are collected by the electrode array in the cochlea and then sent to the brain. (b) This child is able to hear with the help of a cochlear implant. Hearing spoken language during the early years of a child's life helps in the development of the child's own speech.

Because the damage is to the nerves or the brain, nerve hearing impairment cannot typically be helped with ordinary hearing aids, which are basically sound amplifiers, or the hearing aids are not enough. A technique for restoring some hearing to those with irreversible nerve hearing impairment makes use of an electronic device called a *cochlear implant*. This device sends signals from a microphone worn behind the ear to a sound processor worn on the belt or in a pocket, which then translates those signals into electrical stimuli that are sent to a series of electrodes implanted directly into the cochlea, allowing transduction to take place and stimulating the auditory nerve. (See **Figure 3.10**.) The brain then processes the electrode information as sound.

3.4 3.5

Explore the Concept at MyPsychLab

CONCEPT MAP



3.6 3.7

Explore the Concept at MyPsychLab

## CONCEPT MAP

- **smell/olfaction**
  - called a chemical sense because substance molecules are suspended in the air, carried to the nasal cavity, and fit into receptor sites
  - nose serves as a collection device
  - unique in that signals do not first travel to the thalamus before going to the brain

## Chemical Senses

- **taste/gustation**
  - made possible largely through the role of taste buds (taste receptor cells)
  - five basic tastes (receptor types)
    - **sweet**
    - **sour**
    - **salty**
    - **bitter**
    - **umami**
  - called a chemical sense because food molecules dissolve in saliva, which then fits into receptor sites

## Somesthetic Senses

- **skin senses** — processed by the skin
  - is an organ—receives and transmits information from the outside world to the somatosensory cortex of the brain
  - sensitive to touch, pressure, temperature — **pain**
- **kinesthetic sense** — processed by proprioceptors in skin, joints, muscles, and tendons
- **vestibular sense** — processed by vestibular organs
  - convey information about movement and body position
  - found in the inner ear
    - **otolith organs**
    - **semicircular canals**
  - responsible for motion sickness

## PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. Taste is often called a _____ sense because it works with the molecules of foods that people eat.
   **a.** physical **c.** chemical
   **b.** psychological **d.** electrical
2. Research has found that taste information is sent to the
   **a.** pons and medulla.
   **b.** suprachiasmatic nucleus.
   **c.** cerebellum and parietal lobe.
   **d.** insula and frontal operculum.
3. How often are olfactory receptors replaced by new olfactory receptors?
   **a.** every 12–24 hours **c.** every 30 days
   **b.** every 2–3 days **d.** every 5–8 weeks
4. Olfactory receptors project directly to the _____, and are unique in that signals do not first connect to the thalamus.
   **a.** occipital lobe
   **b.** olfactory bulbs
   **c.** hypothalamus
   **d.** gustatory cortex
5. In gate-control theory, substance P
   **a.** opens the spinal gates for pain.
   **b.** closes the spinal gates for pain.
   **c.** is unrelated to pain.
   **d.** is similar in function to endorphins.
6. Motion sickness often results from conflicting signals sent from the _____ and from the _____.
   **a.** eyes; vestibular organs
   **b.** brain; internal organs
   **c.** conscious; unconscious
   **d.** extremities; brain

THINKING CRITICALLY:
What kinds of changes in your life would you have to make if you suddenly could not feel pain?

**Figure 3.26 The Devil's Trident**
At first glance, this seems to be an ordinary three-pronged figure. But a closer look reveals that the three prongs cannot be real as drawn. Follow the lines of the top prong to see what goes wrong.

respects. Fortunately, the two types of processing are often used together in perceiving the surrounding world.

Would people of different cultures perceive objects differently because of different expectancies? Some research suggests that this is true. For example, take a look at **Figure 3.26.** This figure is often called the "devil's trident." Europeans and North Americans insist on making this figure three dimensional, so they have trouble looking at it—the figure is impossible if it is perceived in three dimensions. But people in less technologically oriented cultures have little difficulty with seeing or even reproducing this figure, because they see it as a two-dimensional drawing, quite literally a collection of lines and circles rather than a solid object (Deregowski, 1969). By contrast, if you give Europeans and North Americans the task of reproducing a drawing of an upside-down face, their drawings tend to be more accurate because the upside-down face has become a "collection of lines and circles." That is, they draw what they actually see in terms of light and shadow rather than what they "think" is there three dimensionally.

3.8 3.9 3.10 3.11

Explore the Concept at MyPsychLab

## The ABCs of Perception

**CONCEPT MAP**

- **perception**
  - method by which the sensations experienced at any given moment are interpreted and organized in some meaningful fashion
    - has a subjective nature; no two people perceive the world in the exact same way
  - may have unique features depending on sensory modality
    - e.g., vision
      - **depth perception**
        - ability to perceive the world in three dimensions
        - made possible by differential information from the eyes
  - may not always be based on an accurate interpretation of the stimulus
    - **perceptual illusions**
      - an illusion is a perception that does not correspond to physical reality
      - can be caused by default mode of sensory or brain processing and perceptual sets or expectancies

### PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. When opening a door, the actual image on your retina changes drastically but you still perceive the door as a rectangle. This is an example of
   **a.** size constancy. **c.** color constancy.
   **b.** shape constancy. **d.** brightness constancy.
2. Hunters who wear camouflage so that they can blend in with their surroundings are relying on which principle of perception?
   **a.** shape constancy **c.** figure–ground relationships
   **b.** expectancy **d.** depth perception
3. What monocular depth cue can best explain why railroad tracks appear to come together in the distance?
   **a.** convergence **c.** overlap
   **b.** linear perspective **d.** texture gradient
4. The Müller-Lyer illusion occurs more frequently in
   **a.** children than adults.
   **b.** men than women.
   **c.** people living in a Western culture.
   **d.** individuals living in poverty.
5. Jason's uncle claimed to have seen a black panther in the trees beside the highway although no one else saw it. Knowing that his uncle has been looking for a black panther for years, Jason attributes his uncle's "sighting" to
   **a.** perceptual set.
   **b.** perceptual defense.
   **c.** bottom-up processing.
   **d.** cognitive convergence.
6. The first time Megan had to install a ceiling fan in her new home, it took a long time. But later when she help installed a ceiling fan in her best friend's home, she completed the job very quickly. Her improved speed and skill can partially be attributed to
   **a.** bottom-up processing.
   **b.** top-down processing.
   **c.** perceptual expectancy.
   **d.** perceptual set.

Explore the Concept at MyPsychLab

CONCEPT MAP

## What Is Consciousness?

- people's awareness of everything that is going on around them at any given moment (thoughts, sensations, and feelings); much of the day is spent in waking consciousness where these are clear and organized
- altered states of consciousness occur when there is a shift in the quality or pattern of mental activity as compared to waking consciousness; alertness, thought content, and focus can vary greatly

- hypothalamus contains the suprachiasmatic nucleus (SCN)
  - SCN is sensitive to light—influences pineal gland's secretion of melatonin (↑ melatonin = ↑ sleepiness)
  - light through eyes relayed to SCN; SCN signals pineal gland to stop producing melatonin (↓ melatonin = ↑ alertness / ↓ sleepiness)
  - SCN also influences body temperature (↓ temperature = ↑ sleepiness)

## Sleep

(sleep is one of the body's daily [circadian] biological rhythms; sleep–wake cycle controlled by the brain including the hypothalamus and the neurotransmitter serotonin)

- people can live without sleep for a while, can't live without it altogether
  - **sleep deprivation** can lead to serious changes in body and mental functioning
  - **amount of sleep needed** ranges from 4–10 hours; most people need 7–9 hours every 24 hours
  - **adaptive theory of sleep** suggests sleep is a product of evolution; sleep has evolved to avoid the active time of predators
  - **restorative theory of sleep** suggests sleep is vital to the physical health of the body; body growth and repair occur during the deepest stages of sleep

### PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. A change in the quality or pattern of mental activity, such as increased alertness or divided consciousness, is called a(n)
   **a.** waking consciousness.
   **b.** altered state of consciousness.
   **c.** transient state of consciousness.
   **d.** hallucination.
2. The sleep–wake cycle typically follows a 24-hour cycle and is regulated by the _____.
   **a.** cerebellum
   **b.** frontal lobe
   **c.** pituitary gland
   **d.** suprachiasmatic nucleus
3. The pineal gland receives instructions from the _____ to release _____.
   **a.** thalamus; dopamine
   **b.** occipital lobe; serotonin.
   **c.** suprachiasmatic nucleus; melatonin.
   **d.** spinal cord; acetylcholine.
4. Which of the following is involved in determining when we sleep?
   **a.** body position
   **b.** body temperature
   **c.** digestion
   **d.** GABA
5. Which theory states that sleep is a product of evolution?
   **a.** restorative theory
   **b.** adaptive theory
   **c.** reactive theory
   **d.** REM theory

## THE STAGES OF SLEEP

**4.3 What are the different stages of sleep, including the stage of dreaming and its importance?**

So are there different kinds of sleep? Do you go from being awake to being asleep and dreaming—is it instant?

There are actually two kinds of sleep: **REM (rapid eye movement) sleep** and **non-REM (NREM) sleep**. REM sleep is a relatively psychologically active type of sleep when most of a person's dreaming takes place, whereas non-REM sleep spans from lighter stages to a much deeper, more restful kind of sleep. In REM sleep, the voluntary muscles

4.3 4.4

Explore the Concept at MyPsychLab

## CONCEPT MAP

**Sleep**

- consist of both REM (rapid eye movement) and non-REM stages; REM is relatively active whereas non-REM is much deeper and restful; stages defined by level of brain activity as measured by the EEG (beta, alpha, theta, delta waves); sleep cycle is made up of various stages repeated 4–5 times a night
  - **N1 (R&K Stage 1):** while awake, primarily beta activity, more alpha as one relaxes, onset of sleep in N1 is associated with alpha being replaced by theta
  - **N2 (R&K Stage 2):** EEG sleep spindles appear; theta activity is predominant; body temperature continues to drop, heart rate and breathing slow
  - **N3 (R&K Stages 3 and 4):** deepest stage of sleep; delta activity makes up 20% to more than 50% of EEG activity; body is at lowest level of functioning and people are hard to awaken; sleep disorders such as sleepwalking and night terrors occur in this stage
  - **R (R&K REM):** dreaming occurs, including nightmares; eyes move rapidly under the eyelids and EEG indicates presence of beta, but body is typically still, due to sleep paralysis; REM behavior disorder occurs when body is not still or acts out dreams, usually seen in men over age 60
- sleep disorders include a variety of problems that can interfere with sleep
  - **insomnia** is the inability to get to sleep, stay asleep, or get good quality sleep
  - **sleep apnea** consists of loud snoring and stopped breathing
  - **narcolepsy** consists of sudden onset of REM sleep during otherwise waking hours

## PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. In which stage(s) of sleep do people typically experience hypnogogic images?
   **a.** N1 (NREM Stage 1)
   **b.** N2 (NREM Stage 2)
   **c.** N3 (NREM Stage 3)
   **d.** REM
2. Which of the following is a characteristic of N3 (NREM Stage 3) sleep?
   **a.** paralysis of voluntary muscles
   **b.** increased heart rate
   **c.** deepest stage of sleep
   **d.** increased body temperature
3. A person who relies heavily on sleeping pills or alcohol to sleep might experience _____ the following night.
   **a.** sleep apnea
   **b.** night terrors
   **c.** REM rebound
   **d.** REM behavior disorder
4. Sleepwalking occurs in _____ sleep, whereas nightmares occur in _____ sleep.
   **a.** N1 (NREM Stage 1); N2 (NREM Stage 2)
   **b.** REM; N3 (NREM Stage 3)
   **c.** N2 (NREM Stage 2); N1 (NREM Stage 1)
   **d.** N3 (NREM Stage 3); REM
5. If you find yourself lying in bed unable to sleep for more than 20 minutes, what should you do?
   **a.** Start watching television or read so as to help you fall off to sleep.
   **b.** Brew some tea to help relax you.
   **c.** Get out of bed and find some light activity to do (e.g., reading a book).
   **d.** Lie in bed until you fall asleep, even if it takes several hours.
6. In which disorder do people tend to snore in a very loud manner?
   **a.** sleep apnea
   **b.** night terrors
   **c.** sleepwalking
   **d.** narcolepsy

THINKING CRITICALLY:
Do you think that sleepwalking is an adequate defense for someone who has harmed or killed another person? Should a person who has done harm while sleepwalking be forced by the courts to take preventive actions, such as installing special locks on bedroom doors? How might this affect the person's safety, such as in a fire?

# Dreams

4.5 **Why do people dream, and what do they dream about?**

Dreams have long been a source of curiosity. People of ancient times tried to find meaning in dreams. Some viewed dreams as prophecy, some as messages from the spirits. But the real inquiry into the process of dreaming began with the publication of Freud's *The Interpretation of Dreams* (1900).

4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8 4.9 4.10

4.5

Explore the Concept at MyPsychLab

CONCEPT MAP

**Dreams**

- **Why do we dream?**
  - **Freud's interpretation:** wish fulfillment—conflicts, events, and desires represented in symbolic form in dreams
    - **manifest content:** actual dream itself
    - **latent content:** hidden or symbolic meaning of dream
  - **activation-synthesis hypothesis**
    - dreams are product of random signals (activation), with brain forming explanation of signals based on memories and other information (synthesis)
    - activation-information-mode model (AIM) suggests that information access during waking hours can influence the synthesis of dreams
- **What do people dream about?**
  - typically about events that occur in everyday life; most in color; content influenced by gender and culture

PRACTICE **quiz** How Much Do You Remember? ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. In Freud's theory, the actual content of a dream is called
   **a.** manifest content. **c.** symbolic content.
   **b.** latent content. **d.** hidden content.
2. Michael finds that most of his dreams are little more than random images that seemingly have been put into a strange storyline. Which theory of dreams best explains this?
   **a.** Freudian dream theory
   **b.** dreams for survival theory
   **c.** activation-synthesis hypothesis
   **d.** Hall's dreams as reflections of everyday life
3. According to Calvin Hall, what are most dreams centered around?
   **a.** everyday life **c.** frightening events
   **b.** unfulfilled fantasies **d.** past childhood
4. Freud says that dreams are a means of
   **a.** addressing anxieties. **c.** resolving conflicts.
   **b.** becoming aware of insecurities. **d.** wish fulfillment.
5. Studies show that most people tend to
   **a.** dream in black and white.
   **b.** dream in color.
   **c.** only have nightmares.
   **d.** not dream at all.

THINKING CRITICALLY

Keep a notepad near your bed for the next few nights. When you wake up, immediately write down any dream that you experienced. After you've recorded a few dreams, think about how the events in the dream relate to your life. Are things included that were happening the day before the dream occurred? Were there memories? Were some of the elements of the dream repetitions from past dreams? Which dream theory seems to fit your dreams best?

## The Effects of Hypnosis

4.6 **How does hypnosis affect consciousness?**

**Hypnosis** is a state of consciousness in which a person is especially susceptible to suggestion. Although a lot of misunderstandings exist about hypnosis, it can be a useful tool when properly managed. **Watch** the **Video**, *Thinking Like a Psychologist: The Uses and Limitations of Hypnosis: Is Hypnosis a Unique State of Consciousness?*, at **MyPsychLab**

### STEPS IN HYPNOTIC INDUCTION

There are four key steps in inducing hypnosis (Druckman & Bjork, 1994):

1. The hypnotist tells the person to focus on what is being said.
2. The person is told to relax and feel tired.
3. The hypnotist tells the person to "let go" and accept suggestions easily.
4. The person is told to use vivid imagination.

The real key to hypnosis seems to be a heightened state of suggestibility.* People can be hypnotized when active and alert, but only if they are willing to be hypnotized. Only 80 percent of all people can be hypnotized, and only 40 percent are good hypnotic subjects.

*suggestibility: being readily influenced.

also reported that they imagined being at the beach or in some other place that allowed them to dissociate* from the pain.

**HYPNOSIS AS SOCIAL ROLE-PLAYING: THE SOCIAL-COGNITIVE EXPLANATION** The other theory of why hypnosis works began with an experiment in which participants who were *not* hypnotized were instructed to behave as if they were (Sarbin & Coe, 1972). These participants had no trouble copying many actions previously thought to require a hypnotic state, such as being rigidly suspended between two chairs. The researchers also found that participants who were not familiar with hypnosis, and had no idea what the "role" of a hypnotic subject was supposed to be, could not be hypnotized.

Add to those findings the later findings that expectancies of the hypnotized person play a big part in how the person responds and what the person does under hypnosis (Kirsch, 2000). The **social-cognitive theory of hypnosis** assumes that people who are hypnotized are not in an altered state but are merely playing the role expected of them in the situation. They might believe that they are hypnotized, but in fact it is all a very good performance, so good that even the "participants" are unaware that they are role-playing. Social roles are very powerful influences on behavior, as anyone who has ever worn a uniform can understand—the uniform stands for a particular role that becomes very easy to play (Zimbardo, 1970; Zimbardo et al., 2000). LINK to Learning Objective 12.11.

*dissociate: break a connection with something.

4.6

Explore the Concept at MyPsychLab

CONCEPT MAP

## The Effects of Hypnosis

(state of consciousness during which person is more susceptible to suggestion)

- can be assessed by scale of hypnotic susceptibility
- induction typically involves relaxed focus and "permission to let go"; person being hypnotized is in control and cannot be hypnotized against his or her will
- can be used in therapy—helps people deal with pain, anxiety, or cravings (e.g., food, drug)
- **theories**
  - **dissociation:** one part of the mind is aware of actions/activities taking place, while the "hypnotized" part is not
  - **social-cognitive theory** suggests that people assume roles based on expectations for a given situation

PRACTICE **quiz** How Much Do You Remember? ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. The primary key to hypnosis is finding someone who
   **a.** accepts suggestions easily. **c.** is already very tired.
   **b.** has a vivid imagination. **d.** is easily distracted.
2. "Hey, I couldn't help it. I was hypnotized." What best explains this rationale for one's behavior while hypnotized?
   **a.** dissociative theory **c.** basic suggestion effect
   **b.** expectancy theory **d.** biological theory
3. Your friend tells you she is seeing a therapist who wishes to use hypnosis as part of her therapy. However, your friend is concerned that she might be hypnotized without knowing it. What might you tell her?
   **a.** Be careful. Hypnotists are in control of you while hypnotized.
   **b.** Not to worry. Hypnotists can only control their patient's behavior about 40 percent of the time.
   **c.** That you actually hypnotize yourself and you cannot be hypnotized against your will.
   **d.** Don't worry. Hypnosis is just an illusion and doesn't really work.
4. Which theory of hypnosis includes the idea of a "hidden observer"?
   **a.** social cognitive
   **b.** biological
   **c.** expectancy
   **d.** dissociative

THINKING CRITICALLY:
Based on your knowledge of hypnosis, develop a theory to explain why some people can make themselves believe that they have been abducted by aliens.

4.7 4.8 4.9

Explore the Concept at MyPsychLab

CONCEPT MAP

**Why do some people continue to use or become addicted to psychoactive drugs?**

- **physical dependence:** user's body needs a drug to function; drug tolerance and withdrawal are warning signs/symptoms
- **psychological dependence:** user believes drug is needed to function

## The Influence of Psychoactive Drugs

(drugs that alter thinking, perception, or memory)

**types**

- **stimulants** — increase functioning of nervous system
  - **amphetamines**
  - **cocaine**
  - **nicotine**
  - **caffeine**
- **depressants** — have sedative effect
  - **barbiturates** — major tranquilizers
  - **benzodiazepines** — minor tranquilizers—Valium, Xanax, Halcion, Ativan, Librium, Rohypnol
  - **alcohol**
  - **narcotics** — euphoria-producing and pain-relieving drugs derived from opium
    - **morphine**
    - **heroin**
    - **methadone** — does not produce euphoria; used to treat heroin addiction
- **hallucinogens** — alter brain's interpretation of sensations
  - **manufactured**
    - **LSD**
    - **PCP**
    - **MDMA (Ecstasy)**
  - **nonmanufactured** — **marijuana**

## PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. As consequences to stopping drug use, headaches, nausea, shaking, and elevated blood pressure are all signs of
   a. withdrawal.
   b. overdose.
   c. psychological dependency.
   d. amphetamine toxicity.

2. What drug's physical withdrawal symptoms include severe mood swings (crash), paranoia, extreme fatigue, and an inability to feel pleasure?
   a. heroin
   b. caffeine
   c. alcohol
   d. cocaine

3. Which of the following statements about nicotine is true?
   a. In terms of addictive power, nicotine is more powerful than heroin or alcohol.
   b. Nicotine can slow the heart and therefore create a sense of relaxation.
   c. Overall, the number of Americans smoking is on the increase.
   d. Overall, the number of women and teenagers smoking is on the decrease.

4. _____ is a tranquilizer that is also known as the "date rape" drug.
   a. Halcion
   b. Librium
   c. Rohypnol
   d. Xanax

5. Typically, narcotics have the ability to
   a. cause intense hallucinations.
   b. suppress the sensation of pain.
   c. stimulate the user.
   d. cause deep levels of depression.

6. Most studies of marijuana's effects have found that
   a. it creates a powerful psychological dependency.
   b. it creates a strong physical dependency.
   c. it produces intense withdrawal symptoms.
   d. it is easy to overdose on the substance.

THINKING CRITICALLY:
What might happen if the use of nicotine products became illegal?

5.1 5.2

Explore the Concept at MyPsychLab

CONCEPT MAP

## Definition of Learning

(any relatively permanent change in behavior brought about by experience or practice)

- "relatively permanent" aspect of learning refers to learning being associated with physical changes in the brain
- although physical changes may be present we may not always be able to "get" to the information

- **discovered by Ivan Pavlov** — focused on observable, measurable behavior
  worked with salivating dogs
- **several key elements must be present and experienced**
  - **unconditioned stimulus (UCS):** original, naturally occurring stimulus that ordinarily leads to an involuntary response
  - **unconditioned response (UCR):** involuntary response to the unconditioned stimulus
  - **conditioned stimulus (CS):** previously neutral stimulus that begins to cause the same kind of involuntary response when paired repeatedly with the UCS
  - **conditioned response (CR):** response that is given to the CS

## Classical Conditioning

(learning to make an involuntary response to a stimulus other than the original, natural stimulus that normally produces it)

- **basic principles for classical conditioning to occur**
  - CS must come before the UCS
  - CS and UCS must come very close together in time (< 5 sec)
  - CS must be paired with the UCS many times
  - CS must be distinct from other competing stimuli
- **key features**
  - **stimulus generalization:** response to a stimulus that is similar to the original CS
  - **stimulus discrimination:** response to different stimuli in different ways
  - **extinction:** presentation of the CS in the absence of the UCS leads to reduction in the CR
  - **spontaneous recovery:** reappearance of a previously extinguished CR
  - **higher-order conditioning:** occurs when strong CS is paired with new neutral stimulus; new previously neutral stimulus becomes a second CS

## PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. Learning can best be described as
   **a.** a relatively permanent change in behavior.
   **b.** a permanent change in behavior.
   **c.** due primarily to unconscious motives.
   **d.** momentary changes that require biological changes from within.

2. Michael noticed that whenever he moved his dog's food dish, his dog would come into the kitchen and act hungry and excited. He reasoned that because he feeds the dog using that dish, the sound of the dish had become a(n)
   **a.** unconditioned stimulus.
   **b.** conditioned stimulus.
   **c.** unconditioned response.
   **d.** conditioned response.

3. Which of the following statements is essential to classical conditioning?
   **a.** The CS and UCS must come close together in time.
   **b.** The CS must come immediately after the CR.
   **c.** The neutral stimulus and UCR must be paired several times before conditioning takes place.
   **d.** The CS should be something highly unusual.

4. Ever since she was scared by a dog as a young child, Angelica has been afraid of all dogs. The fact that she is not only afraid of the original dog but all types of dogs is an example of
   **a.** extinction.
   **b.** spontaneous recovery.
   **c.** stimulus discrimination.
   **d.** stimulus generalization.

Biological preparedness for fear of objects that are dangerous makes sense for survival, but when objects are not typically dangerous, it turns out to be very difficult to condition a fear of those objects. In one study, monkeys easily learned to be afraid of a toy snake or crocodile by watching videos of other monkeys reacting fearfully to these stimuli (a good example of vicarious conditioning). But the monkeys never learned to fear flowers or a toy rabbit by the same means (Cook & Mineka, 1989). Snakes and crocodiles are predators; flowers and rabbits are not.

Conditioned taste aversions in nature. This moth is not poisonous to birds, but the monarch butterfly whose coloring the moth imitates is quite poisonous. Birds find their food by vision and will not eat anything that resembles the monarch.

## WHY DOES CLASSICAL CONDITIONING WORK?

Pavlov believed that the conditioned stimulus, through its association close in time with the unconditioned stimulus, came to activate the same place in the animal's brain that was originally activated by the unconditioned stimulus. He called this process *stimulus substitution*. But if a mere association in time is all that is needed, why would conditioning *fail to happen* when the CS is presented immediately *after* the UCS?

Robert Rescorla (1988) found that the CS has to provide some kind of information about the coming of the UCS in order to achieve conditioning. In other words, the CS must predict that the UCS is coming. In one study, Rescorla exposed one group of rats to a tone, and just after the tone's onset and while the tone was still able to be heard, an electric shock was administered for some of the tone presentations. Soon the rats became agitated* and reacted in fear by shivering and squealing at the onset of the tone, a kind of conditioned emotional response. But with a second group of rats, Rescorla again sounded a tone but administered the electric shock only *after* the tone *stopped*, not while the tone was being heard. That group of rats responded with fear to the *stopping* of the tone (Rescorla, 1968).

The tone for the second group of rats provided a different kind of information than the tone in the first instance. For the first group, the tone means the shock is coming, whereas for the second group, the tone means there is no shock while the tone is on. It was the particular *expectancy* created by pairing the tone or absence of tone with the shock that determined the particular response of the rats. Because this explanation involves the mental activity of consciously expecting something to occur, it is an example of an explanation for classical conditioning called the **cognitive perspective**.

*agitated: excited, upset.

5.3

Explore the Concept at MyPsychLab

CONCEPT MAP

**Classical Conditioning (continued)**

(learning to make an involuntary response to a stimulus other than the original, natural stimulus that normally produces it)

- **other features**
  - **conditioned emotional responses:** emotional responses that have become classically conditioned to occur in response to learned stimuli; based on work of John B. Watson; helps explain development of phobias
  - **conditioned taste aversion** is one situation where classical conditioning can occur quickly without repeated pairings
    - some associations are relatively quick and easy to learn due to survival value for organism (biological preparedness)
  - **vicarious conditioning** can occur by simply watching someone else respond to a stimulus
- **Why does it work?**
  - **Pavlov**—stimulus substitution occurs where the CS comes to activate the same part of the brain that was originally activated by the UCS
  - **cognitive perspective**—organism consciously expects something to occur; CS provides information about the coming of the UCS (based on work of Rescorla)

Table 5.1

## Comparing Two Kinds of Conditioning

| OPERANT CONDITIONING | CLASSICAL CONDITIONING |
|---|---|
| End result is an increase in the rate of an already occurring response. | End result is the creation of a new response to a stimulus that did not normally produce that response. |
| Responses are voluntary, emitted by the organism. | Responses are involuntary and automatic, elicited by a stimulus. |
| Consequences are important in forming an association. | Antecedent stimuli are important in forming an association. |
| Reinforcement should be immediate. | CS must occur immediately before the UCS. |
| An expectancy develops for reinforcement to follow a correct response. | An expectancy develops for UCS to follow CS. |

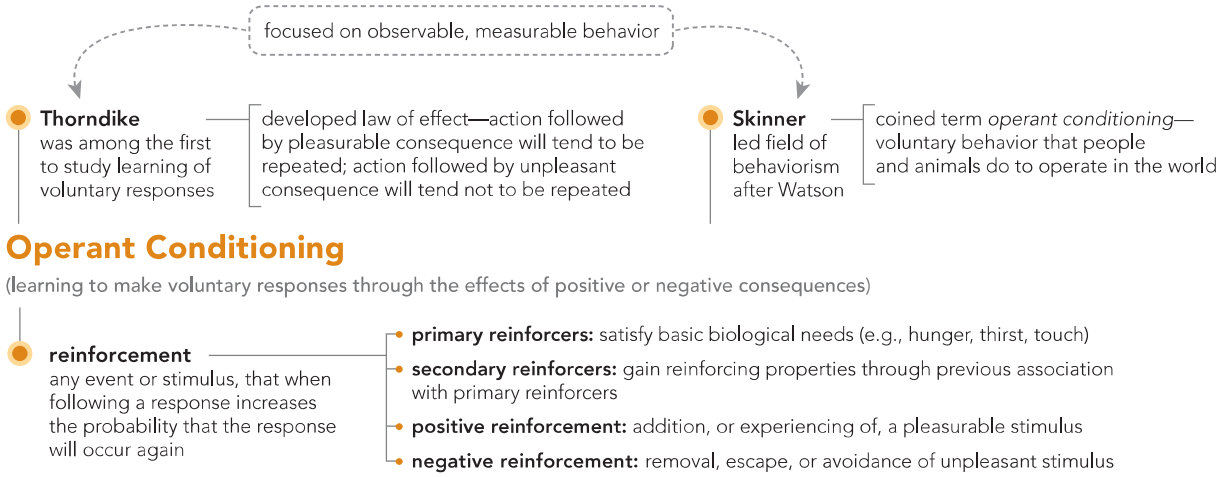
**POSITIVE AND NEGATIVE REINFORCEMENT** Reinforcers can also differ in the way they are used. Most people have no trouble at all understanding that following a response with some kind of pleasurable consequence (like a reward) will lead to an increase in the likelihood of that response being repeated. This is called **positive reinforcement**, the reinforcement of a response by the *addition* or experience of a pleasurable consequence, such as a reward or a pat on the back. But many people have trouble understanding that the opposite is also true: Following a response with *the removal or escape* from something *unpleasant* will also increase the likelihood of that response being repeated—a process called **negative reinforcement**. Remember the idea that pain can be a reinforcer if it is removed? If a person's behavior gets pain to stop, the person is much more likely to do that same thing again—which is part of the reason people can get addicted to painkilling medication. (We'll discuss the concepts of positive and negative reinforcement in more detail later on.)

We've discussed what reinforcement is and how it affects the behavior that follows the reinforcement. In the next section we'll discuss the different ways in which reinforcement can be administered as well as the difference between reinforcement and punishment. We'll also look at the role of the stimuli that come *before* the behavior that is to be reinforced and a few other operant conditioning concepts.

5.4 5.5

Explore the Concept at MyPsychLab

CONCEPT MAP


focused on observable, measurable behavior
Thorndike
was among the first to study learning of voluntary responses
developed law of effect—action followed by pleasurable consequence will tend to be repeated; action followed by unpleasant consequence will tend not to be repeated
Skinner
led field of behaviorism after Watson
coined term operant conditioning—voluntary behavior that people and animals do to operate in the world
Operant Conditioning
(learning to make voluntary responses through the effects of positive or negative consequences)
reinforcement
any event or stimulus, that when following a response increases the probability that the response will occur again
primary reinforcers: satisfy basic biological needs (e.g., hunger, thirst, touch)
secondary reinforcers: gain reinforcing properties through previous association with primary reinforcers
positive reinforcement: addition, or experiencing of, a pleasurable stimulus
negative reinforcement: removal, escape, or avoidance of unpleasant stimulus

5.6 5.7 5.8 5.9 5.10

Explore the Concept at MyPsychLab

CONCEPT MAP

## Operant Conditioning (continued)

(learning to make voluntary responses through the effects of positive or negative consequences)

- **schedules of reinforcement**
  - **timing of reinforcement** influences speed of learning, strength of learned response, and subsequent behavior pattern
  - **continuous reinforcement:** provision of reinforcer for each and every correct response
    - easier to establish new responses but more sensitive to extinction
  - **partial reinforcement:** reinforcing behavior after some but not all correct responses
    - leads to a response that is resistant to extinction
    - schedule can be specified by the pattern/ratio of responses or by time/interval
    - both ratio and interval schedules can be either fixed or variable
- **punishment** is any event or stimulus that, when following a response, decreases the probability that the response will occur again
  - opposite of reinforcement, which increases the probability that the response will occur again
  - punishment by application—something unpleasant is added to the situation
  - punishment by removal—something pleasurable is removed
  - to work—must be immediate, consistent, and paired with reinforcement of actual behavior desired
- **other features**
  - stimuli must be discriminative; specific cues lead to specific responses
  - some behaviors can be established through shaping, reinforcing small steps, or each successive approximation, toward the ultimate goal
  - as in classical conditioning, extinction, generalization, and spontaneous recovery can occur
  - instinctive drift, or the tendency to revert to genetically controlled patterns of behavior, can serve as a biological constraint on operant conditioning
- **behavior modification**
  - application of operant conditioning principles (sometimes classical conditioning) to change undesirable behaviors and create desirable behaviors in both humans and animals
  - token economies, time-out, applied behavior analysis, biofeedback, and neurofeedback use these principles

## PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. Joe owned a small repair shop. Each day, he would check the mail to see if any of his customers mailed in a payment for the work he had done for them. Some days, he would receive a check or two. At other times, he would have to wait days before getting another payment. What schedule of reinforcement is evident here?
   **a.** fixed interval
   **b.** fixed ratio
   **c.** variable interval
   **d.** variable ratio
2. Little Jimmie's mother was upset to find that Jimmie had not picked up his building blocks after repeated requests to do so. The next morning, Jimmie found all his blocks had been picked up and put into a bag on the top of the refrigerator. Jimmie's mother told him that he couldn't play with his blocks for the next two days. Which type of discipline did she use?
   **a.** negative reinforcement
   **b.** punishment by application
   **c.** punishment by removal
   **d.** positive reinforcement
3. The study by Keller and Marian Breland found that instinctive drift in animal behavior is
   **a.** caused by confusion between punishment types.
   **b.** caused by overuse of positive reinforcement.
   **c.** the result of conscious decisions on the part of animals not to take part in further testing.
   **d.** genetically determined and not under the influence of learning.
4. Tabitha signed up for a new credit card that offers reward miles for every purchase. Tabitha plans to make as many purchases as she can so that she can accumulate enough miles to go on a trip over spring break. Such an approach is an example of
   **a.** token economy.
   **b.** shaping.
   **c.** a schedule of reinforcement.
   **d.** a form of negative reinforcement.

of models can make attention more likely. For example, people pay more attention to those they perceive as similar to them, and to those they perceive as attractive.

**MEMORY** The learner must also be able to retain the *memory* of what was done, such as remembering the steps in preparing a dish that was first seen on a cooking show.

**IMITATION** The learner must be capable of reproducing, or *imitating*, the actions of the model. A 2-year-old might be able to watch someone tie shoelaces and might even remember most of the steps, but the 2-year-old's chubby little fingers will not have the dexterity* necessary for actually tying the laces. A person with extremely weak ankles might be able to watch and remember how some ballet move was accomplished but will not be able to reproduce it. The mirror neurons discussed in Chapter Two may be willing, but the flesh is weak. LINK to Learning Objective 2.9.

**DESIRE** Finally, the learner must have the desire or *motivation* to perform the action. That person at the fancy dinner, for example, might not care which fork or which knife is the "proper" one to use. Also, if a person expects a reward because one has been given in the past, or has been promised a future reward (like the children in the second group of Bandura's study), or has witnessed a model getting a reward (like the children in the first group), that person will be much more likely to imitate the observed behavior. Successful models are powerful figures for imitation, but rarely would we be motivated to imitate someone who fails or is punished.

(An easy way to remember the four elements of modeling is to remember the letters AMID, which stand for the first letters of each of the four elements. This is a good example of using a strategy to improve memory. LINK to Learning Objective PIA.7.)

*dexterity: skill and ease in using the hands.



5.11 5.12

Explore the Concept at MyPsychLab

CONCEPT MAP

## Cognitive Learning Theory

(focuses on role of cognition, or thought processes, on learning)

- **Tolman** — worked with rats in a maze
  - suggested animals form a cognitive map of the physical layout of the maze
  - performance not due to reinforcement
  - **latent learning:** learning occurs but behavior not manifested until organism has reason to demonstrate it
- **Köhler** — worked with chimpanzees; set up a problem situation
  - chimp first exhibited trial-and-error approach
  - later appeared to experience a sudden insight into solving the problem (retrieving a banana)
- **Seligman** — originally studied escape and avoidance learning in dogs
  - discovered that the animals did nothing in a specific situation
  - **learned helplessness:** tendency to fail to act to escape from a situation because of a past history of repeated failures; or according to recent work by Maier, possibly due to not learning how to relax and take control accompanied by activation of key brain structures

## Observational Learning

(the learning of a new behavior through the observation of a model; typically associated with classic work of Bandura and "Bobo doll" study)

- **key elements for learner**
  - pay attention to the model
  - able to remember what was done
  - capable of reproducing, or imitating, the actions of the model
  - have the desire or motivation to perform the action
- **children observing** — an adult model's aggressive or nonaggressive behaviors tended to later act in the same manner they saw modeled; no reinforcement was necessary
  - later research suggested that potential consequences can influence motivation to imitate a particular model

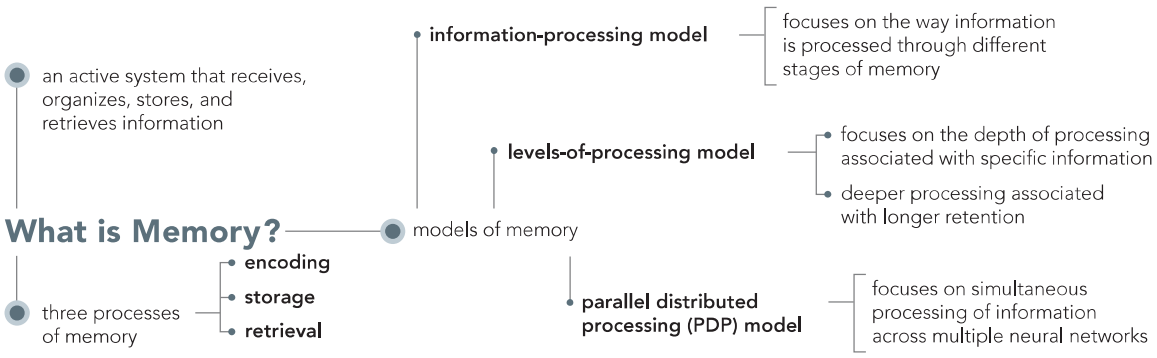
(continued)

6.1 6.2 6.3 6.4 6.5 6.6 6.7 6.8 6.9 6.10 6.11 6.12 6.13

6.1

Explore the Concept at MyPsychLab

CONCEPT MAP


What is Memory?
an active system that receives, organizes, stores, and retrieves information
three processes of memory
encoding
storage
retrieval
models of memory
information-processing model
focuses on the way information is processed through different stages of memory
levels-of-processing model
focuses on the depth of processing associated with specific information
deeper processing associated with longer retention
parallel distributed processing (PDP) model
focuses on simultaneous processing of information across multiple neural networks

PRACTICE quiz How Much Do You Remember? ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. Human memory consists of multiple systems that have the ability to store information for periods of time that range from _____ to _____.
   **a.** seconds; hours.
   **b.** seconds; our lifetime.
   **c.** minutes; decades.
   **d.** hours; our lifetime.
2. Ruth has just finished her research paper and handed it in. As she walks out of the classroom, she realizes that there were a few more things she should have included in the paper. Ruth's problem is in the memory process of
   **a.** encoding.
   **b.** storage.
   **c.** retrieval.
   **d.** retention.
3. Which model of memory suggests that memory processes occur throughout a neural network simultaneously?
   **a.** levels-of-processing model
   **b.** parallel distributed processing model
   **c.** information-processing model
   **d.** three-stage model
4. Research has demonstrated you can enhance your memory for specific words if you think about its meaning, how it can be used, and by giving a personal example of its use. This is best accounted for by which model of memory?
   **a.** levels-of-processing model
   **b.** parallel distributed processing model
   **c.** information-processing model
   **d.** three-stage model

## The Information-Processing Model: Three Memory Systems

The link between cognitive psychology and information-processing theory was discussed briefly in Chapter One. Information-processing theory, which looks at how memory and other thought processes work, bases its model for human thought on the way that a computer functions (Massaro & Cowan, 1993). Data are encoded in a manner that the computer can understand and use. The computer stores that information on a disc, hard drive, or—these days—a memory stick, and then the data are retrieved out of storage as needed. It was also information-processing theorists who first proposed that there are three stages or types of memory systems (see **Figure 6.1**): sensory memory, short-term memory, and long-term memory (Atkinson & Shiffrin, 1968). Explore the Concept, *Information-Processing Model of Memory*, at MyPsychLab

### SENSORY MEMORY: WHY DO PEOPLE DO DOUBLE TAKES?

6.2 How does sensory memory work?

**Sensory memory** is the first stage of memory, the point at which information enters the nervous system through the sensory systems—eyes, ears, and so on. Think of it as a door that is open for a brief time. Looking through the door, one can see many people

6.2 6.3 6.4 6.5

Explore the Concept at MyPsychLab

CONCEPT MAP

## The Information-Processing Model

(proposes three stages that vary both in duration and capacity; information must be processed effectively at earlier stages before long-term storage occurs)

- **sensory memory** — capacity limited, duration <1 sec to 4 sec
  - **iconic** (visual)
  - **echoic** (auditory)
- **short-term and working memory** — capacity limited (3–5 items), duration 12–30 secs without rehearsal
  - chunking and maintenance rehearsal can be used to increase capacity and duration, respectively
    - maintenance rehearsal differs from elaborative rehearsal
- **long-term memory** — capacity seemingly unlimited, duration relatively permanent
  - associated with physical changes in the brain; hippocampus and cortex involved in consolidation of information from short-term to long-term memory
    - elaborative rehearsal can lead to better long-term storage
  - different types, based on information stored; different brain areas associated with each
    - **nondeclarative**: implicit memory for skills, habits, and learned responses; likely involves amygdala and cerebellum
    - **declarative:** explicit memory for facts and information; involves widespread cortical areas
      - **semantic:** general knowledge/meaning
      - **episodic:** episodes/events from one's life
  - organized in terms of related meanings and concepts
    - **semantic network model** can explain how information is stored in connected fashion
    - **parallel distributed processing model** can be used to explain speed at which different points can be accessed

## PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. _____ memories are said to linger in the mind for a few seconds, allowing people the chance to keep with the flow of conversations and remember what was just said.
   **a.** Iconic
   **b.** Echoic
   **c.** Short-term
   **d.** Long-term

2. Information enters into short-term memory through a process known as _____.
   **a.** recency effect
   **b.** primacy effect
   **c.** selective attention
   **d.** repetition

3. Of the following, which is the most similar to the concept of long-term memory?
   **a.** a computer hard drive
   **b.** a computer monitor
   **c.** a computer mouse
   **d.** a computer keyboard

4. Amber meets a cute guy named Carson at a party. She wants to make sure she remembers his name so she reminds herself that he has the same name as the capital of Nevada (Carson City). This transferring of information from short-term memory to long-term memory is an example of what type of rehearsal?
   **a.** repetitive
   **b.** imagery
   **c.** elaborative
   **d.** maintenance

5. Brenda has been able to tie her shoes since she was 4 but now finds it difficult to explain to her baby brother how to tie his shoes but she can easily demonstrate it for him. Brenda's memory for shoe-tying is best characterized as a _____ memory.
   **a.** declarative (explicit)
   **b.** semantic
   **c.** episodic
   **d.** nondeclarative (implicit)

6. When you take your final exam in your psychology class, what type of memory will you most certainly need to access to answer each question?
   **a.** procedural
   **b.** semantic
   **c.** episodic
   **d.** working

THINKING CRITICALLY:
In thinking about a typical day, how do you use each type of memory: procedural, episodic, and semantic?

6.6 6.7

Explore the Concept at MyPsychLab

CONCEPT MAP

- **getting it out**
  - **retrieval cues** — more cues stored with a piece of information, the easier the retrieval
  - **encoding specificity**
    - **context-dependent learning** — improved memory for information if physical surroundings are similar to those when the memory was first formed
    - **state-dependent learning** — improved memory for information if physiological or psychological state is similar to that when the memory was first formed

## Retrieval of Long-Term Memories

- **recall vs. recognition**
  - **recall:** few or no external cues required
    - **retrieval failure:** (e.g., "tip of the tongue")
    - **serial position effect:** memory improved for items at beginning (primacy) and end (recency) of a list
  - **recognition:** match incoming sensory information (e.g., see or hear) to what is already in memory — false positives can occur (e.g., eyewitness testimony)
- **automatic encoding** — strong emotional associations can lead to vivid and detailed "flashbulb" memories

PRACTICE **quiz** How Much Do You Remember? ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. What concept suggests that the best place to study for your psychology final to ensure good retrieval of concepts is your psychology classroom?
   a. serial position effect
   b. encoding specificity
   c. tip of the tongue phenomenon
   d. automatic encoding
2. Jaclynn had written a grocery list but accidentally left it at home. Trying to remember the list, Jaclynn remembers what was at the beginning of the list and what was at the end but not those things in the middle. This is an example of the
   a. encoding specificity effec.
   b. serial position effect.
   c. tip-of-the-tongue effect.
   d. flashbulb memory.
3. Multiple-choice test questions typically rely on _____ while essay questions rely on _____.
   a. rehearsal; recall
   b. relearning; rehearsing
   c. recall; recognition
   d. recognition; recall
4. Studies by Elizabeth Loftus find that memory
   a. is like a camera that can take pictures for people to recall and review as needed.
   b. is surprisingly inaccurate up to age 12, at which time people begin to show vast improvements.
   c. is highly influenced by culture and that today's technology is having a negative effect on memory.
   d. is highly fluid and can be altered by the person even when the person is unaware he or she is doing it.
5. Felisha can recall with great detail the day of her wedding and all that occurred. What might psychologists say about these particular flashbulb memories?
   a. The memories were likely enhanced in part by the hormones released during emotional moments.
   b. The memories should last up to 15–20 years.
   c. The memories are unusually accurate.
   d. The memories are stored as procedural memories.

## The Reconstructive Nature of Long-Term Memory Retrieval: How Reliable Are Memories?

I think my memory is pretty good, but my brother and I often have arguments about things that happened when we were kids. Why don't we have the same exact memories? We were both there!

People tend to assume that their memories are accurate when, in fact, memories are revised, edited, and altered on an almost continuous basis. The reason for the changes that

6.8 6.9

Explore the Concept at MyPsychLab

CONCEPT MAP

## The Reconstructive Nature of Long-Term Memory

- **constructive processing of memories**
  - memories are rarely completely accurate and become less accurate over time
  - Loftus and others have suggested that memory retrieval is a constructive process; memories are "built" at time of retrieval
- **memory retrieval problems**
  - **misinformation effect:** incorporation of inaccurate information into actual memory
  - **reliability of memory retrieval:** false memories can result from change in both waking, conscious states and in altered states (e.g., hypnosis)
    - influenced by plausibility of event and individual receiving collaborative feedback that makes it easier to believe

### PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. Studies show that as time passes, memories
   - **a.** tend to become more and more inaccurate.
   - **b.** increase in accuracy since the body is now calm and relaxed.
   - **c.** will remain like an "instant replay" no matter what occurs.
   - **d.** stay the same and show no change in accuracy.
2. In Loftus's 1978 study, subjects viewed a slide presentation of an accident. Later, some of the subjects were asked a question about a yield sign when the actual slides contained pictures of a stop sign. When presented with this inaccurate information, how did these subjects typically respond?
   - **a.** Most corrected Loftus and recalled seeing a stop sign.
   - **b.** Many began seeing both a stop sign and a yield sign.
   - **c.** Many subjects' overall accuracy dropped when confronted with conflicting information.
   - **d.** Subjects were confused, but only briefly, at which point their accuracy of recalling the event returned.
3. Aaron has no memory of how he got home from a party. He then convinces himself that he must have been abducted by aliens while walking home. Subsequently, he is hypnotized in an attempt to help increase his memories of that evening. Based on the research of memory recall through hypnosis, what might we learn?
   - **a.** Aaron may unknowingly create false memories of what happened that night to justify his belief.
   - **b.** Aaron will be less confident of his memories from the evening.
   - **c.** Hypnosis makes it harder to for Aaron to recall memories of the evening in general.
   - **d.** Aaron will not be able to recall the evening but will have memories of being in the womb.
4. A key component for any person to believe that a false event is in fact true is to make sure that the false information is
   - **a.** as plausible as possible.
   - **b.** introduced as soon after the event as possible.
   - **c.** introduced by a source perceived as trustworthy.
   - **d.** introduced no sooner than 24 hours after the event but no later than 15 days.

# What Were We Talking About? Forgetting

Why do we forget things? And why do we forget some things but not others?

### 6.10 Why do we forget?

You may think that being able to remember everything like Brad Williams, the Human Google of the opening story, would be wonderful. But it's important to consider that people with hyperthymesia not only have the ability to remember nearly everything, but also have the inability to *forget*. The video *The Big Picture: The Woman Who Cannot Forget* describes the case of Jill Price, a woman who remembers every detail of her life, both the good and the bad.

"remember" some event from infancy, a little investigation usually reveals that the "memory" is really based on what family members have told the person about that event and is not a genuine memory at all. This type of "manufactured" memory often has the quality of watching yourself in the memory as if it were a movie and you were an actor. In a genuine memory, you would remember the event through your own eyes—as if you were the camera.

Why can't people remember events from the first 2 or 3 years of life? One explanation of **infantile amnesia** involves the type of memory that exists in the first few years of life, when a child is still considered an infant. Early memories tend to be implicit and, as stated earlier in this chapter, implicit memories are difficult to bring to consciousness. Explicit memory, which is the more verbal and conscious form of memory, does not really develop until after about age 2, when the hippocampus is more fully developed and language skills blossom (Carver & Bauer, 2001). Watch the Video, *Kimberley Cuevas: Learning and Memory in Infants*, at MyPsychLab

Katherine Nelson (1993) also gives credit to the social relationships that small children have with others. As children are able to talk about shared memories with adults, they begin to develop their **autobiographical memory**, or the memory for events and facts related to one's personal life story.



6.10 6.11 6.12

Explore the Concept at MyPsychLab

CONCEPT MAP

## Forgetting

(originally studied by Ebbinghaus in 1913, research produced forgetting curve)

- **distributed practice** produces far better retrieval than massed practice (cramming)
- **encoding failure** nonattended information is not encoded into memory
- **memory trace decay** over time, if not used, neuronal connections can weaken or decay
- **interference** other information interferes with accurate retrieval
  - **proactive:** previously learned
  - **retroactive:** newly acquired

## Neuroscience of Memory

- different brain areas are associated with different types of memory
  - **procedural memories:** cerebellum
  - **short-term memories:** prefrontal cortex and temporal lobes
  - **semantic and episodic long-term memories:** frontal and temporal lobes (different locations than short-term memories)
- several physical changes in brain are associated with memory formation (consolidation)
  - changes at receptor (long-term potentiation)
  - changes in dendrites
- **hippocampus** plays a vital role in the formation of new declarative long-term memories
- **amnesia**
  - **organic amnesia:** caused by problems in brain function associated with brain trauma, disease, or aging
    - **retrograde**
    - **anterograde**

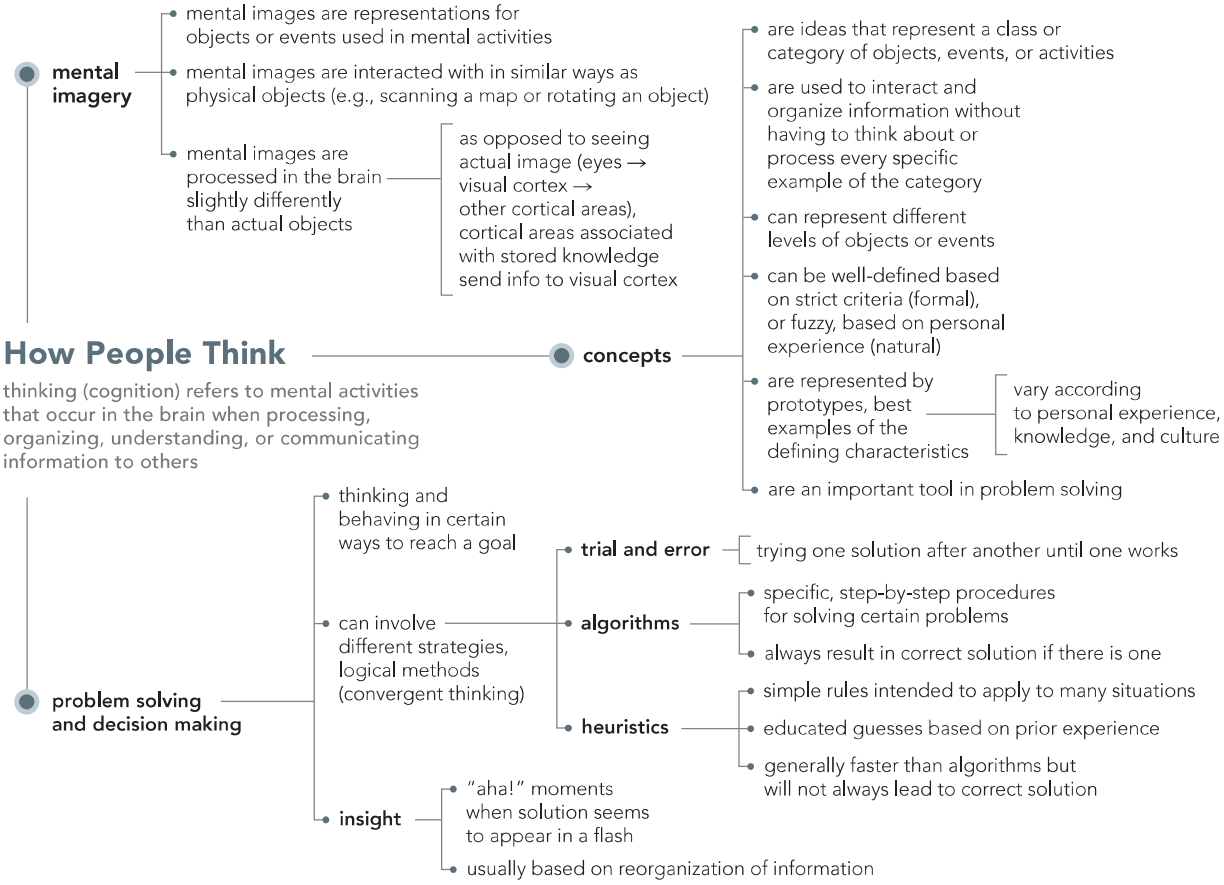
    patient H. M. is a classic case study
  - **infantile amnesia:** memories before age 3 are likely implicit, not explicit

(*continued*)

7.1 7.2

Explore the Concept at MyPsychLab

## CONCEPT MAP


How People Think
thinking (cognition) refers to mental activities that occur in the brain when processing, organizing, understanding, or communicating information to others
mental imagery
mental images are representations for objects or events used in mental activities
mental images are interacted with in similar ways as physical objects (e.g., scanning a map or rotating an object)
mental images are processed in the brain slightly differently than actual objects
as opposed to seeing actual image (eyes → visual cortex → other cortical areas), cortical areas associated with stored knowledge send info to visual cortex
concepts
are ideas that represent a class or category of objects, events, or activities
are used to interact and organize information without having to think about or process every specific example of the category
can represent different levels of objects or events
can be well-defined based on strict criteria (formal), or fuzzy, based on personal experience (natural)
are represented by prototypes, best examples of the defining characteristics
vary according to personal experience, knowledge, and culture
are an important tool in problem solving
problem solving and decision making
thinking and behaving in certain ways to reach a goal
can involve different strategies, logical methods (convergent thinking)
trial and error
trying one solution after another until one works
algorithms
specific, step-by-step procedures for solving certain problems
always result in correct solution if there is one
heuristics
simple rules intended to apply to many situations
educated guesses based on prior experience
generally faster than algorithms but will not always lead to correct solution
insight
"aha!" moments when solution seems to appear in a flash
usually based on reorganization of information

## PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. What is thinking?
   - **a.** mental activity that involves processing, organizing, understanding, and communicating information
   - **b.** spontaneous, non-directed, and unconscious mental activity
   - **c.** simply and succinctly, it is only our ability to remember
   - **d.** all mental activity except memory

2. In the brain, the process of creating a mental image is _____ how we see an actual image.
   - **a.** identical to
   - **b.** similar to
   - **c.** almost the opposite of
   - **d.** nothing like

3. People in the United States often think of a sports car when asked to envision a fun, fast form of travel. In this example, a sports car would be considered a
   - **a.** prototype.
   - **b.** natural concept.
   - **c.** formal concept.
   - **d.** mental image.

4. What method of problem solving guarantees a solution?
   - **a.** heuristic
   - **b.** algorithm
   - **c.** trial-and-error solution
   - **d.** insight

5. What type of problem-solving strategy would be best if you are giving directions to a coffee shop that you currently are at?
   - **a.** trial and error
   - **b.** availability heuristic
   - **c.** representative heuristic
   - **d.** work backward from the goal

6. While taking a shower, Miguel suddenly realizes the solution to a problem at work. When later asked how he solved this problem, Miguel said, "The answer just seemed to pop into my head." Miguel's experience is an example of
   - **a.** a mechanical solution.
   - **b.** a heuristic.
   - **c.** an algorithm.
   - **d.** insight.

Many people have the idea that creative people are also a little different from other people. There are artists and musicians, for example, who actually encourage others to see them as eccentric. But the fact is that creative people are actually pretty normal. According to Csikszentmihalyi (1997):

1. Creative people usually have a broad range of knowledge about a lot of subjects and are good at using mental imagery.
2. Creative people aren't afraid to be different—they are more open to new experiences than many people, and they tend to have more vivid dreams and daydreams than others do.
3. Creative people value their independence.
4. Creative people are often unconventional in their work, but not otherwise.

Cynthia Breazeal is a researcher at the Artificial Intelligence Lab at M.I.T. Here she is pictured with the robot she designed called Kismet. Designed to help with the study of infant emotional expressions, Kismet can display several "moods" on its face as emotional expressions. This is divergent thinking at its best—a "baby" that won't cry, wet, or demand to be fed.



7.3

Explore the Concept at MyPsychLab

CONCEPT MAP

**problems with problem solving**
- solutions to problems are not always apparent
- problems can be caused by three common barriers
  - **functional fixedness:** only thinking about objects in terms of their typical uses
  - **mental set:** a tendency to persist in using problem-solving patterns that have worked in the past
  - **confirmation bias:** a tendency to search for evidence that fits your beliefs while ignoring evidence to the contrary

## Problem Solving and Decision Making

**creativity**
- consists of new ways of combining ideas or behavior
- typically the result of divergent thinking
  - less prone to common barriers of problem solving
  - can be stimulated (see Table 7.1)

### Practice quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

**1.** Alicia leaves her office building only to find it is raining. She returns to her office and gets a trash bag out of the supply cabinet. Using a pair of scissors, she cuts the bag so that she can put her head and arms through the bag without getting wet. In using the trash bag as a makeshift rain jacket, Alicia has overcome
**a.** functional fixedness.
**b.** confirmation bias.
**c.** creativity bias.
**d.** confirmation fixedness.

**2.** Randall believes that aliens are currently living deep under the ocean. When looking for information about this on the Internet, he ignores any sites that are skeptical of his belief and only visits sites that support his belief. This is an example of
**a.** functional fixedness.
**b.** confirmation bias.
**c.** creativity bias.
**d.** confirmation fixedness.

**3.** If you ask someone to give you as many uses as possible for a piece of paper, what type of thinking is being used?
**a.** divergent
**b.** functional fixedness
**c.** convergent
**d.** mental-set

**4.** Which of the following is the best way to encourage divergent, creative thinking?
**a.** Go for a walk or engage in some other automatic activity.
**b.** Stare at a blank sheet of paper until a new, innovative solution comes to mind.
**c.** Engage in many activities simultaneously.
**d.** Force yourself to think of something new and creative.

7.4 7.5

Explore the Concept at MyPsychLab

CONCEPT MAP

## Intelligence

(the ability to learn from one's experiences, acquire knowledge, and use resources effectively)

- **theories**
  - **Spearman's g factor:** intelligence comprises two different abilities
    - **g factor:** general intelligence
    - **s factor:** specific intelligence
  - **Gardner's multiple intelligences:** overall intelligence comprises nine different types (see Table 7.2)
  - **Sternberg's triarchic theory:** intelligence comprises three different aspects
    - **analytical**
    - **creative**
    - **practical**

## Measuring Intelligence

- **tests** (first formal test created by Alfred Binet and Theodore Simon to help identify French students who needed more help with learning)
  - **Binet's Mental Ability Test** — key element to be tested was child's mental age
  - **Stanford-Binet**
    - **Terman** (researcher at Stanford) translated and revised Binet's test
    - first test to adopt intelligence quotient (IQ): IQ = mental age/chronological age × 100 — now uses age-group comparison norms as the Wechsler does
    - uses a variety of verbal and nonverbal subtests to provide an overall estimate of intelligence and scores related to five areas of cognition (see Table 7.3)
  - **Wechsler Tests** — uses a variety of verbal and performance subtests to provide an overall score of intelligence and index scores related to four specific cognitive domains (see Table 7.4)
- **test construction**
  - good tests are both valid and reliable
  - standardized administration, scoring, and comparison against norms
  - intelligence is assumed to follow a normal curve
  - is challenging
    - different definitions of intelligence and multiple ways to assess them
    - difficult to design tests that are completely free of cultural bias

## PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

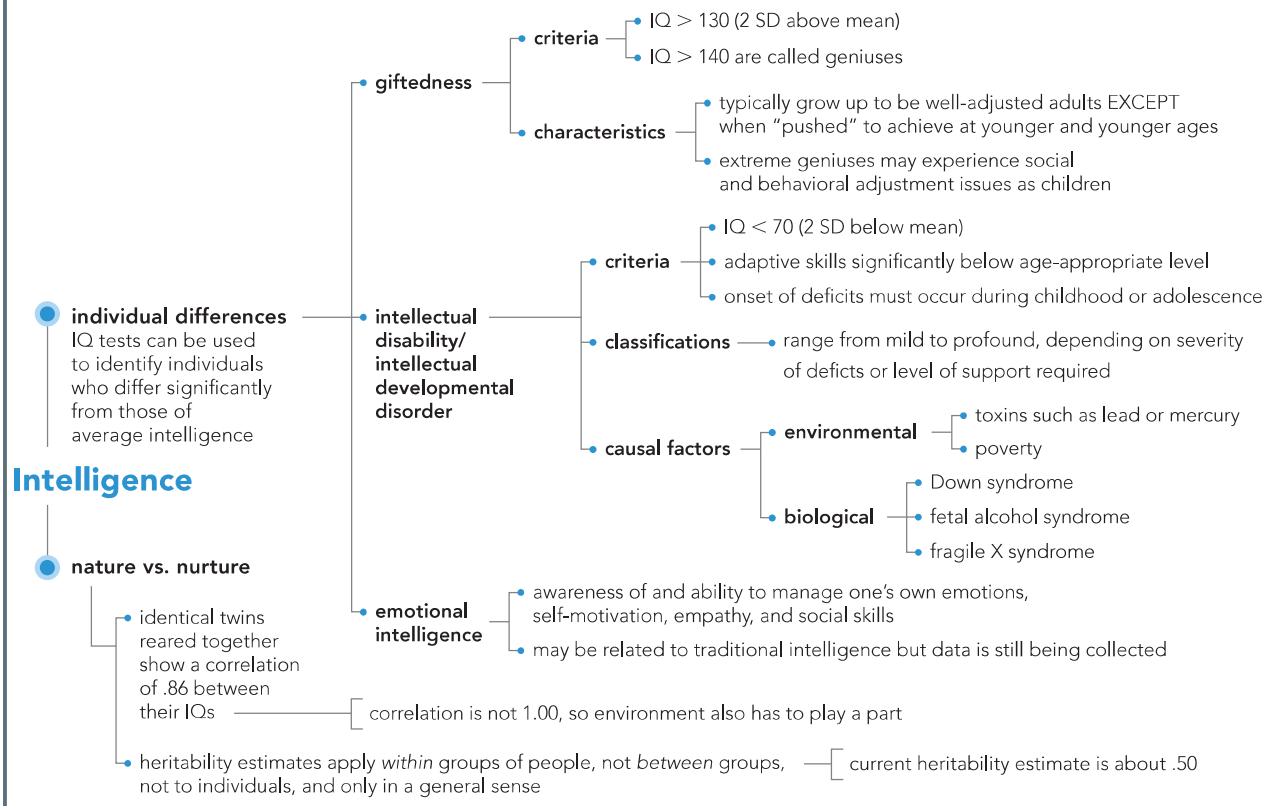
1. In Gardner's view, effective counseling psychologists and managers would likely be high in _____ intelligence.
   **a.** verbal/linguistic **c.** interpersonal
   **b.** visual–spatial **d.** intrapersonal
2. According to Sternberg, which type of intelligence has a low relationship to academic success and would be the most difficult to measure in the classroom?
   **a.** practical
   **b.** creative
   **c.** analytical
   **d.** verbal
3. By what age do IQ scores start to become meaningless?
   **a.** 5 **c.** 16
   **b.** 10 **d.** 30
4. Liv is 4 years old. The intelligence test that would most likely be used to determine her IQ is the
   **a.** WAIS-IV.
   **b.** WISC-IV.
   **c.** WPPSI-IV.
   **d.** Dove Test.
5. Professor Becker designed an IQ test. To validate this test, the professor should be careful to do which of the following?
   **a.** Give the test at least twice to the same group to ensure accuracy.
   **b.** Select the people in the sample from the population of people for whom the test is designed.
   **c.** Select only university professors to take the test so that they can critique the questions on the test.
   **d.** Strive to make sure that the test measures what it is supposed to measure.
6. In terms of differing cultures, what should be the goal of every test designer?
   **a.** to create a test free of cultural bias
   **b.** to create a test that is culturally fair
   **c.** to create a test with no questions involving culture
   **d.** to create a series of culture-varied tests

THINKING CRITICALLY:
What kind of questions would you include on an intelligence test to minimize cultural bias?

7.6 7.7 7.8

Explore the Concept at MyPsychLab

## CONCEPT MAP


Intelligence
individual differences
IQ tests can be used to identify individuals who differ significantly from those of average intelligence
nature vs. nurture
identical twins reared together show a correlation of .86 between their IQs
correlation is not 1.00, so environment also has to play a part
heritability estimates apply within groups of people, not between groups, not to individuals, and only in a general sense
current heritability estimate is about .50
giftedness
criteria
IQ > 130 (2 SD above mean)
IQ > 140 are called geniuses
characteristics
typically grow up to be well-adjusted adults EXCEPT when "pushed" to achieve at younger and younger ages
extreme geniuses may experience social and behavioral adjustment issues as children
intellectual disability/ intellectual developmental disorder
criteria
IQ < 70 (2 SD below mean)
adaptive skills significantly below age-appropriate level
onset of deficits must occur during childhood or adolescence
classifications
range from mild to profound, depending on severity of deficits or level of support required
causal factors
environmental
toxins such as lead or mercury
poverty
biological
Down syndrome
fetal alcohol syndrome
fragile X syndrome
emotional intelligence
awareness of and ability to manage one's own emotions, self-motivation, empathy, and social skills
may be related to traditional intelligence but data is still being collected

## PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. Kyle, age 13, has an intellectual disability complicated by multiple physical and sensory impairments that significantly impact his skills of daily living and ability to communicate. He is unable to take care of himself in any area of life. Kyle would most likely be classified with _____ intellectual disability.
   a. mild
   b. moderate
   c. severe
   d. profound

2. Lewis Terman's study provided evidence that individuals with high IQs
   a. are generally weaker and lack social skills.
   b. are no better at excelling in their careers than others with average IQs.
   c. show little to no signs of mental illness or adjustment problems.
   d. have more problems with interpersonal relationships except for those with IQs over 180.

3. What were some of the differences between the 100 most successful men and the 100 least successful men in Terman's study?
   a. The successful men had higher IQ scores and better parental upbringing.
   b. The successful men had higher IQ scores and no family history of mental illness.
   c. The successful men had no family history of mental illness and were more motivated in general.
   d. The successful men had clearly defined goals and more motivation to achieve them.

4. In recent studies, what do some researchers argue is a more accurate means of gauging success in relationships and careers?
   a. intellectual intelligence
   b. emotional intelligence
   c. heredity studies
   d. stress surveys

5. Which of the following would be an example of a stereotype threat?
   a. Joaquim, who believes IQ tests are unfair to Hispanics, something that his IQ score seems to reflect
   b. Jasmine, who feels she must excel on her IQ test
   c. Tiana, who believes that all testing, no matter the type, is stereotypical and biased
   d. Malik, who believes that tests are equal but must excel so as not to be stereotyped by his friends

Kanzi looks at the keyboard used in teaching language to chimpanzees. Kanzi's language abilities were learned through watching researchers train his mother rather than directly—much as a human infant learns through listening to the speech of adults.

so he is not responding to physical cues or symbols. He has managed to follow correctly complex instructions up to the level of a 2-year-old child (Savage-Rumbaugh et al., 1998). The most recent studies with Kanzi have him making sounds that seem to have consistent meaning across different situations (Tagliatatela et al., 2003). Nearly 100 videotaped hours of Kanzi engaged in day-to-day activities were analyzed for these sounds. The researchers were able to identify four sounds that seemed to represent banana, grapes, juice, and the word *yes*. (However, remember that four sounds do not come close to making an entire language.)

**Watch** the **Video**, *Classic Footage of Chimpanzees and Sign Language*, at **MyPsychLab**

Other studies, with dolphins (Herman et al., 1993) and with parrots (Pepperberg, 1998, 2007), have also met with some success. Is it real language? The answer seems to be a qualified "yes." The qualification is that none of the animals that have achieved success so far can compare to the level of language development of a 3-year-old human child (Pinker, 1995). However, linguists still debate whether these animals are truly learning language if they are not also learning how to use syntax—combining words into grammatically correct sentences as well as being able to understand the differences between sentences such as "The girl kissed the boy" and "The boy kissed the girl." As yet, there is no conclusive evidence that any of the animals trained in language have been able to master syntax (Demers, 1988; Johnson, 1995; Pinker, 1995).

7.9 7.10

**Explore** the **Concept** at **MyPsychLab**

CONCEPT MAP

**Language**

- **levels of language analysis** — language structures worldwide share common characteristics
  - **grammar** — system of rules governing structure and use of language
    - according to Chomsky, humans have an innate ability, language acquisition device (LAD) to understand and produce language
  - **syntax** — rules for combining words and phrases
  - **morphemes** — smallest units of meaning within a language
  - **semantics** — rules for determining the meaning of words and sentences
  - **phonemes** — basic units of sound in a language
  - **pragmatics** — social "niceties" or practical aspects of communicating with others
    - taking turns
    - use of gestures
    - different ways of speaking to different people
- **the relationship between language and thought**
  - does language influence thought or does thinking influence language?
    - relationship has been debated
    - Piaget believed that concepts preceded, and aided, language development
    - Vgotsky believed that language helps develop concepts and helps the child learn to control behavior
  - linguistic relativity hypothesis
    - words people use determine the way they think about the world; originally proposed by Sapir and Whorf; may apply more to higher level concepts
    - suggests that some concepts are universal and influence the development of language
  - animal studies in language
    - all animals can communicate, their use of language is still under investigation
    - some success (chimpanzees, parrots, dolphins), may approach level of 3-year-old human, no conclusive evidence of syntax mastery

Explore the Concept at MyPsychLab

## CONCEPT MAP

### Issues in Studying Human Development

(scientific study of changes that occur in people as they age)

- **research designs**
  - **longitudinal:** one group of people is followed and assessed at different times as they age
  - **cross-sectional:** several different age-groups are studied at one time
  - **cross-sequential:** combination of longitudinal and cross-sectional
- **nature vs. nurture debate**
  - **nature** refers to heredity and the influence of inherited characteristics on personality, growth, intellect, social skills, etc.; behavioral genetics is relatively new field that attempts to identify genetic basis of behavior
  - **nurture** refers to influence of the environment on inherited traits including parenting styles, socioeconomic status, physical surroundings, etc.
  - most developmental psychologists agree that the most likely explanation for most human development is based on the interaction between nature and nurture

### Basic Building Blocks of Development

- **genetics** is the science of heredity
- **DNA (deoxyribonucleic acid):** contains genetic codes and chromosomes
  - aside from egg and sperm, humans have 46 chromosomes in each cell of the body
  - individual gets 23 chromosomes from mother's egg and 23 from father's sperm
  - most characteristics are determined by 22 such pairs (autosomes); the last pair determines sex of the person (sex chromosomes)
- both dominant and recessive genes determine physical and behavioral traits
  - specific physical and behavioral traits are dependent upon pairing of genes; more active genes are dominant, others are recessive (see Figure 8.2)
  - most traits are polygenetic
- genetic and chromosome problems can cause a variety of disorders
  - genetic disorders carried by recessive genes are expressed when a child gets two recessive genes
  - issue may also occur if chromosomes having an extra or a missing pair

## PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. In a _____ design, one group of people is followed and assessed at different times as the group ages.
   **a.** longitudinal
   **b.** cross-sectional
   **c.** cross-sequential
   **d.** cross-longitudinal
2. The cognitive and social changes students go through because they are born and grow up in an age of smartphones would be referred to as a(n)
   **a.** experimental group.
   **b.** control group.
   **c.** dominance effect.
   **d.** cohort effect.
3. Brandy has naturally blond hair. Based on this information, what do we know about Brandy's parents?
   **a.** At least one of her parents has a recessive gene for blond hair.
   **b.** Each of her parents must have one recessive gene for blond hair.
   **c.** Each of her parents must have one dominant gene for brown hair.
   **d.** Neither of her parents has a recessive gene for blond hair.
4. When sets of genes group together, the result can be multiple traits expressed as a single dominant trait. This is best explained by the process known as
   **a.** dominant inheritance.
   **b.** recessive inheritance.
   **c.** polygenetic inheritance.
   **d.** amines.
5. Which of the following is a disorder resulting from recessive inheritance?
   **a.** Turner's syndrome
   **b.** Klinefelter's syndrome
   **c.** cystic fibrosis
   **d.** Down syndrome
6. Which disorder is characterized by having only one X chromosome in the 23rd pairing?
   **a.** Tay-Sachs
   **b.** Turner's syndrome
   **c.** Klinefelter's syndrome
   **d.** PKU

THINKING CRITICALLY:
The time is coming when choosing the genetic traits of your child is going to be possible. What kinds of ethical and practical problems may arise from this development?

8.1 8.2 8.3 8.4 8.5 8.6 8.7 8.8 8.9 8.10 8.11

8.4

Explore the Concept at MyPsychLab

CONCEPT MAP

- from conception to birth of the baby is approximately 9 months in humans

## Prenatal Development

- **fertilization, the zygote, and twinning**
  - egg and sperm unite through process of fertilization, resulting in a single cell (zygote) that has 46 chromosomes
  - through mitosis, zygote begins to divide, into two cells, then four, etc., until baby is formed
  - alterations in mitosis can result in twins or multiples
- **germinal period** (2-week period following fertilization)
  - zygote continues dividing and moving toward the uterus; the placenta and umbilical cord also develop during this time
  - cell differentiation is the process that results in specialized cells for all of the various parts of the body
- **embryonic period** (2 weeks after conception to 8 weeks)
  - once attached to the uterus, developing organism is called an embryo
  - cell specialization continues to occur, resulting in the preliminary versions of various organs
  - embryo is vulnerable to hazards such as diseases and substances ingested by the mother as it receives nourishment through the placenta
- **fetal period** (from about 8 weeks to birth)
  - developing organism now called a fetus; time of tremendous growth and development
  - organs continue to develop and become fully functional
  - full-term birth occurs around end of 38th week
  - miscarriages (spontaneous abortions) are most likely to occur in the first three months

PRACTICE **quiz** How Much Do You Remember? ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. Which term best describes Abby and Brittany Hensel?
   a. They are monozygotic twins.
   b. They are dicephalic twins.
   c. They are dizygotic twins.
   d. They are technically not twins at all.
2. What is the function of the placenta?
   a. It helps the zygote to divide.
   b. It assists the zygote in its movement towards the uterus.
   c. It provides nourishment to the developing baby.
   d. It effectively keeps out all teratogens.
3. The 2nd week through the 8th week of pregnancy is commonly referred to as the _____ stage.
   a. fetal
   b. embryonic
   c. placental
   d. germinal
4. Which of the following is one of the most common teratogens and can result in a malformed head and brain damage?
   a. alcohol
   b. caffeine
   c. cocaine
   d. mercury
5. When do most miscarriages occur?
   a. In the last three months
   b. In the first three months
   c. After the 5th month
   d. In the first week after conception

## Infancy and Childhood Development

What can babies do? Aren't they pretty much unaware of what's going on around them at first?

Surprisingly, babies can do a lot more than researchers used to believe they could. A lot of the early research on infants just after birth was done on babies who were still very drowsy from the general anesthesia that was administered to their mothers during the labor process. Drowsy babies don't tend to respond well, as one might imagine. Since

seizures or severe allergic reactions, but the risk of these is much lower than that of catching the disease if a child is not immunized (Centers for Disease Control and Prevention, 2011; Offit & Bell, 1998).

Myth: Immunization is not needed because these diseases have been eliminated.

Fact: Even though these diseases are rare or nonexistent in the United States, they still flourish in other parts of the world. Children must continue to be vaccinated against them because it is easy to come into contact with illnesses through travel (Centers for Disease Control and Prevention, 1994, 2011, 2013).

### Questions for Further Discussion

1. What advice concerning vaccinations would you give a friend who is having a baby?
2. Should children who are not vaccinated be allowed to attend public schools?
3. What can be done to encourage parents to have their children immunized?

---

8.5 8.6

Explore the Concept at MyPsychLab

CONCEPT MAP

- **physical development**
  - immediately after birth, body systems start to function (i.e., respiratory, circulatory, temperature regulation, digestive)
  - babies are born with (innate) reflex behaviors (see Fig. 8.4)
- **sensory development**
  - touch, taste, and smell are well developed
  - hearing is functional but not fully developed
  - vision is least developed (rods are functional, cones take about 6 months to fully develop)
- **motor development**
  - as with physical and sensory development, normal motor development is related to many factors, such as nutrition, care, and health
  - birth to 2 years = period of rapid development (see Fig. 8.5)

## Infancy and Childhood Development

- **Piaget's theory**
  - suggests children form mental concepts or schemes as they experience new situations and events
    - understand new things in terms of schemes they already possess (assimilation) or through altering or adjusting old schemes to fit new information (accommodation)
  - proposes four distinct stages of cognitive development that span infancy to adolescence
    - **sensorimotor**
    - **preoperational**
    - **concrete operations**
    - **formal operations**
    - → see Table 8.3
- **Vygotsky's theory**
  - stresses the importance of social interactions with others, typically more highly skilled children and adults
  - children's cognitive development occurs when someone helps them by asking leading questions and providing examples of concepts (scaffolding)
  - each child has a zone of proximal development—difference between what they can do alone vs. with aid of a teacher

## Infancy and Childhood Development: Cognitive Development

- **stages of language development**
  - language allows children to think in words, ask questions, communicate needs and wants, and form concepts
  - universal progressive stages
    - cooing, babbling, one-word speech, telegraphic speech, whole sentences
- **autistic spectrum disorder**
  - neurodevelopmental disorder that involves issues in thinking, feeling, language, and social interactions
  - causes are still being investigated but do not appear to be linked to childhood immunizations

(continued)

8.1 8.2 8.3 8.4 8.5 8.6 8.7 8.8 8.9 8.10 8.11

8.7

Explore the Concept at MyPsychLab

CONCEPT MAP

- **psychosocial development** — involves development of personality, relationships, and a sense of being male or female; process begins in infancy and continues into adulthood
- **important early concepts**
  - infants demonstrate personality through their temperament (e.g., easy, difficult, slow to warm up), which can also affect, and is affected by, parenting and the environment
  - attachment (emotional bond between infant and a primary caregiver) is very important; different attachment styles have been identified by Ainsworth and others (e.g., secure, avoidant, ambivalent, disorganized–disoriented) that appear to be similar, but not identical, across different cultures
- **Erikson's theory**
  - suggests development occurs in a series of eight stages (see Table 8.4)
  - at each stage an emotional crisis must be successfully met for normal development to occur

## Infancy and Childhood Development: Psychosocial Development

PRACTICE **quiz** How Much Do You Remember? ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. According to Thomas and Chess, temperament styles often last _____ and are often influenced by _____.
   a. into early childhood; the unconscious
   b. into early adolescence; the environment
   c. into early adulthood; family
   d. throughout adulthood; heredity
2. What kind of attachment, according to Ainsworth, is shown by a baby who clings to his or her mother, gets upset when the mother leaves, and demands to be picked up but at the same time kicks and pushes her away?
   a. secure
   b. avoidant
   c. ambivalent
   d. disorganized–disoriented
3. Studies by Harry Harlow showed that the most important element to developing attachment is
   a. feeding.
   b. physical contact.
   c. mental challenges.
   d. sleep.
4. Baby Lisa is beginning to learn more about herself. When she sees herself in a mirror, she smiles and laughs but no longer needs to touch the mirror or look behind it to find the baby that she sees. Researchers would say that baby Lisa is developing
   a. trust versus mistrust.
   b. autonomy versus shame and doubt.
   c. awareness of herself.
   d. her internal identity.
5. According to Erikson, which stage results in a sense of independence because of one's ability to control their own actions?
   a. trust versus mistrust
   b. autonomy versus shame and doubt
   c. initiative versus guilt
   d. generativity versus stagnation

# Adolescence

8.8 **What are the physical, cognitive, and personality changes that occur in adolescence, including concepts of morality and Erikson's search for identity?**

**Adolescence** is the period of life from about age 13 to the early 20s, during which a young person is no longer physically a child but is not yet an independent, self-supporting adult. Although in the past, adolescence was always defined as the "teens," from ages 13 to 19, adolescence isn't necessarily determined by chronological age. It also concerns how a person deals with life issues such as work, family, and relationships. So although there is a clear age of onset, the end of adolescence may come earlier or later for different individuals.

believe that a certain amount of "rebellion" and conflict is a necessary step in breaking away from childhood dependence on the parents and becoming a self-sufficient* adult (Bengston, 1970; Lynott & Roberts, 1997). Although many people think that these conflicts are intense and concern very serious behavior, the reality is that most parent–teen conflict is over trivial issues—hair, clothing, taste in music, and so on. On the really big moral issues, most parents and teens would be quite surprised to realize that they are in agreement (Giancola, 2006). **Watch** the **Video**, *The Big Picture: Different Perspectives on the World*, at **MyPsychLab**

*self-sufficient: able to function without outside aid; capable of providing for one's own needs.

## 8.8

**Explore** the **Concept** at **MyPsychLab**

### CONCEPT MAP

**Adolescence**
(period of life from about age 13 to early 20s)

- **physical development**
  - increase in height and changes in both primary and secondary sex characteristics
  - occurs as the result of glandular and hormonal activities
  - tends to occur about 2 years after beginning of growth spurt
- **cognitive development**
  - continued maturation of the frontal lobes allows cognitive advances (e.g., abstract thought/Piaget's formal operations)
  - despite advances, still have egocentric thought that emerges in a variety of ways
- **moral development**
  - understanding of what is "right" and "wrong"
  - early theory was proposed by Kohlberg; suggested three levels of moral development
    - **preconventional**
    - **conventional**
    - **postconventional**

    → see Table 8.5
  - some researchers (e.g., Gilligan) suggest that Kohlberg's ideas applied more to males; others suggest that assessment was based on hypothetical, rather than real-life, dilemmas
- **psychosocial development**
  - adolescence is largely marked by the search for a consistent sense of self or personal identity
  - Erikson: the psychosocial crisis that must be resolved is identity vs. role confusion
  - parent–teen conflict to be expected

### PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. Changes in the body of young boys such as the appearance and growth of body hair is considered
   **a.** a primary sex characteristic.
   **b.** a secondary sex characteristic.
   **c.** the final stage of puberty.
   **d.** a sign of postconventional morality.
2. "It can't happen to me. I'm special" is a common attitude found in adolescents who have developed
   **a.** a self-concept.
   **b.** an imaginary audience.
   **c.** a personal fable.
   **d.** a preconventional morality.
3. According to Kohlberg, about one-fifth of the adult population is at the _____ level of morality.
   **a.** preconventional
   **b.** conventional
   **c.** postconventional
   **d.** preliminary
4. According to Erikson, the task of the adolescent is to
   **a.** find a consistent sense of self.
   **b.** develop a sense of initiative.
   **c.** find intimacy with another.
   **d.** develop a sense of industry.
5. If Colin is going to argue and disagree with his parents, which of the following topics will he typically be arguing over?
   **a.** political beliefs
   **b.** religious beliefs
   **c.** social values
   **d.** his taste in clothes

believed that at this time, people look back on the life they have lived in a process called a life review. In the life review people must deal with mistakes, regrets, and unfinished business. If people can look back and feel that their lives were relatively full and are able to come to terms with regrets and losses, then a feeling of **ego integrity** or wholeness results. Integrity is the final completion of the identity, or ego. If people have many regrets and lots of unfinished business, they feel despair, a sense of deep regret over things that will never be accomplished because time has run out.



## 8.9

Explore the Concept at MyPsychLab

### CONCEPT MAP

**Adulthood**

(period of life from early 20s until old age and death; age of onset can vary by culture)

- **physical development**
  - **young adulthood** — few changes; the 20s are typically associated with peak physical and cognitive health
  - **middle age**
    - hearing and vision begin to decline; weight increase is typical; height starts to decrease
    - women experience menopause; men experience less dramatic change called andropause
    - health problems related to genetics and lifestyle when younger start to appear
  - **late adulthood**
    - further decline in hearing; may need hearing aids
    - physical strength declines
    - people with osteoporosis may lose up to 8 inches in height
- **cognitive development**
  - cognitive skills often highest in 20s; processing and reaction time slow in middle age but are often compensated by greater life and situational knowledge
  - memory issues begin in middle age, likely due to stress and information overload
  - mental abilities aided by active cognitive engagement (challenging crossword puzzles, reading, etc.) and physical activity
- **psychosocial development**
  - typical life concerns involve career, relationships, family, and approaching old age
  - Erikson's stages (see Table 8.4)

### PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. At which age does an adult's physical senses begin to hit their peak?
   a. 20s
   b. 30s
   c. 40s
   d. 50s
2. What is the most frequent cause of death in middle age?
   a. accidents
   b. stroke
   c. excessive risk taking
   d. heart disease
3. As Conrad has gotten older, he finds that it is becoming more difficult to remember certain words or the name of a new acquaintance. What is the most likely explanation for this change in memory?
   a. Alzheimer's disease
   b. the aging process
   c. stress
   d. heredity
4. According to Erikson, the primary task of early adulthood is
   a. completing your education.
   b. finding a mate.
   c. starting a career.
   d. taking care of aging parents.
5. According to Baumrind, which type of parent would most likely say, "Because I said so" or "It's my way or the highway!"
   a. authoritarian
   b. authoritative
   c. permissive neglectful
   d. permissive indulgent
6. As William celebrates his 70th birthday, he finds that he is happy with how things have turned out with his life. According to Erikson, William's life review will cause him
   a. to develop a sense of ego integrity.
   b. a sense of despair, since such reviews often result in depression.
   c. to develop an urgency to begin new projects.
   d. to put to writing many of his accomplishments.

in which people refuse to believe that the diagnosis of death is real; anger, which is really anger at death itself and the feelings of helplessness to change things; *bargaining*, in which the dying person tries to make a deal with doctors or even with God; *depression*, which is sadness from losses already experienced (e.g., loss of a job or one's dignity) and those yet to come (e.g., not being able to see a child grow up); and finally acceptance, when the person has accepted the inevitable* and quietly awaits death.

Obviously, some people do not have time to go through all of these stages or even go through them in the listed order (Schneidman, 1983, 1994). Some theorists do not agree with the stage idea, seeing the process of dying as a series of ups and downs, with hope on the rise at times and then falling, to be replaced by a rise in despair or disbelief (Corr, 1993; Maciejewski et al., 2007; Schneidman, 1983, 1994; Weisman, 1972). Still others question the idea of common reactions among dying people, stating that the particular disease or condition and its treatment, the person's personality before the terminal diagnosis, and other life history factors make the process of dying unique and unpredictable (Kastenbaum & Costa, 1977; Zlatin, 1995). The danger in holding too strictly to a stage theory is that people may feel there is a "right" way to face death and a "wrong" way, when in fact each person's dying process is unique. In fact, attitudes and rituals associated with death and the dying process vary from culture to culture, as discussed in the Applying Psychology section at the end of this chapter.

*inevitable: something that cannot be avoided or escaped.



8.10

Explore the Concept at MyPsychLab

CONCEPT MAP

## Adulthood: Aging

- **theories on aging** — vary focus from biological changes to influence on external stressors
  - **cellular-clock theory**
  - **wear-and-tear theory**
  - **free-radical theory**
- **activity theory** — positive psychological adjustment associated with continued activity and involvement
- **stages of death and dying** (based on work of Kübler-Ross)
  - **denial**
  - **anger**
  - **bargaining**
  - **depression**
  - **acceptance**

PRACTICE **quiz** How Much Do You Remember? ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. The structures on the ends of chromosomes that shorten each time a cell reproduces are called
   **a.** telomeres.
   **b.** collagen.
   **c.** free radicals.
   **d.** DNA.
2. Which theory of aging is compared to the limited number of repairs you can have before your car's warranty runs out?
   **a.** wear-and-tear theory
   **b.** cellular-clock theory
   **c.** free-radical theory
   **d.** activity theory
3. According to research, the reason many older people are no longer involved in their community is because
   **a.** they are not asked to take part.
   **b.** they quite often are unable to take part.
   **c.** they do not wish to be involved.
   **d.** they die.
4. What stage might terminally ill patients be in if they refuse to write a last will and testament because they believe that in doing so, they are admitting they will die?
   **a.** bargaining
   **b.** anger
   **c.** depression
   **d.** denial

THINKING CRITICALLY:
What are your thoughts on the need for closure in dealing with someone's death? Do you think it is always necessary?

Many people are driven by a need to attain both realistic and challenging goals. This young girl seems eager to provide an answer to the teacher's question, and the teacher's positive feedback will help foster the girl's need for achievement.

school who then receives his first C might become depressed and refuse to do any more homework, ensuring future failure.

The other type of person believes that intelligence is changeable and can be shaped by experiences and effort in small increases, or increments. These people also tend to show an internal locus of control, both in believing that their own actions and efforts will improve their intelligence, and in taking control or increasing their efforts when faced with challenges (Dweck & Molden, 2008). They work at developing new strategies and get involved in new tasks, with the goal of increasing their "smarts." They are motivated to master tasks and don't allow failure to destroy their confidence in themselves or prevent them from trying again and again, using new strategies each time.

Based on this and other research, Dweck recommends that parents and teachers praise efforts and the methods that children use to make those efforts, not just successes or ability. Instead of saying, "You're right, how smart you are," the parent or teacher should say something such as, "You are really thinking hard," or "That was a very clever way to think about this problem." In the past, teachers and parents have been told that praise is good and criticism is bad—it might damage a child's self-esteem. Dweck believes that constructive criticism, when linked with praise of effort and the use of strategies, will be a better influence on the child's self-esteem and willingness to challenge themselves than endless praise that can become meaningless when given indiscriminately (Gunderson et al., 2013).

9.1 9.2

Explore the Concept at MyPsychLab

CONCEPT MAP

- **types**
  - **intrinsic:** actions are rewarding or satisfying in and of themselves
  - **extrinsic:** actions are performed because they lead to some sort of external outcome
- **instinct**
  - biologically determined/innate patterns of behavior
  - old approach: instincts are mainly descriptions, not explanations; idea that some behavior is hereditary remains an important focus
- **drive reduction**
  - **need:** requirement for something essential for survival; existence of need leads to psychological tension (drive) and physical arousal; satisfying need reduces drive/tension
  - **primary drives** involve survival needs (e.g., hunger, thirst) and maintaining homeostasis
  - **secondary (acquired) drives** are learned through experience or conditioning (e.g., money, social approval)
- **psychological needs**
  - psychological needs have been highlighted in some theories (e.g., McClelland)
    - need for **achievement (nAch)**
    - need for **affiliation (nAff)**
    - need for **power (nPow)**
  - Dweck suggests that the need for achievement is linked to a person's view of self (fixed or changeable) and locus of control

## Approaches to Understanding Motivation

(process by which activities are started, directed, and continued so that physical or psychological needs or wants are met)

"That is the correct answer, Bill, but I'm afraid you don't win anything for it."

©The New Yorker Collection 1986 Lee Lorenz from cartoonbank.com. All Rights Reserved.

of psychosocial personality development (Erikson, 1950, 1980). LINK to Learning Objective 8.7.

Ryan, Deci, and their colleagues (Deci et al., 1994; Ryan & Deci, 2000) believe that satisfying these needs can best be accomplished if the person has a supportive environment in which to develop goals and relationships with others. Such satisfaction will not only foster healthy psychological growth but also increase the individual's intrinsic motivation (actions are performed because they are internally rewarding or satisfying). Evidence suggests that intrinsic motivation is increased or enhanced when a person not only feels competence (through experiencing positive feedback from others and succeeding at what are perceived to be challenging tasks) but also a sense of autonomy or the knowledge that his or her actions are self-determined rather than controlled by others (deCharms, 1968; Deci & Ryan, 1985).

Previous research has found a negative impact on intrinsic motivation when an external reward is given for the performance (Deci et al., 1999), but while other studies find negative effects only for tasks that are not interesting in and of themselves (Cameron et al., 2001). When the task itself is interesting to the person (as might be an assignment that an instructor or manager has explained in terms of its importance and future value), external rewards may increase intrinsic motivation, at least in the short term. Although this finding is intriguing, further research is needed to determine if the long-term effects of extrinsic rewards on intrinsic motivation are consistently negative, as the bulk of the research has shown up to now.

### But don't we sometimes do things for both kinds of motives?

There are usually elements of both intrinsic and extrinsic motives in many of the things people do. Most teachers, for example, work for money to pay bills (the extrinsic motive) but may also feel that they are helping young children to become better adults in the future, which makes the teachers feel good about themselves (the intrinsic motive).

How universal are these three needs? Some cultures, such as the United States and Great Britain, are *individualistic*, stressing the needs of the individual over the group, independence, and self-reliance. Other cultures are collectivistic, such as those in Japan and China, and stress strong social ties, interdependence, and cooperation. Cross-cultural research indicates that even across such different cultures, the needs for autonomy, mastery, and belongingness are of similar importance (Chirkov, 2009; Chirkov et al., 2011; Ryan et al., 1999; Sheldon, 2012).

9.3 9.4

Explore the Concept at MyPsychLab

CONCEPT MAP

- **arousal** — need for stimulation
  - **arousal theory** suggests people have an optimal level of tension that they work to maintain
  - a moderate level is most commonly sought, but that level can range from low to high (sensation seeking)
- **incentive** — things that attract or lure people into action, most often due to rewarding properties
  - based in part on principles of learning
- **humanistic** — based primarily on Maslow's hierarchy of needs; primary, basic needs must be met before higher levels can be met (see Fig. 9.3)
  - other modifications differ in number of levels and areas of focus
  - **self-determination theory:** similar to Maslow's hierarchy, three universal needs are autonomy, competence, and relatedness

## Approaches to Understanding Motivation (continued)

It is possible that cartoon and movie characters on fast-food packaging can not only influence what children choose to eat, but affect their taste preferences as well.

characters can influence not only children's eating habits but their taste preferences as well. The researchers noted that recognition of the potential negative influences toward poorer nutritional choices should be acknowledged and has implications for the continued use of such characters in the marketing of lower nutritional food items (Roberto et al., 2010). Another study by different researchers yielded similar findings (Lapierre et al., 2011).

### Questions for Further Discussion

1. Besides the influence of cartoon and movie characters, how might observational learning impact what a child chooses to eat?
2. This study focused on the eating habits of young children. What about teenagers and adults? Can you think of a food product or products that these age groups might be influenced to try or like as the result of influential figures (e.g., professional athletes)?

9.5 9.6

Explore the Concept at MyPsychLab

## CONCEPT MAP

**hunger**
- impacted by insulin response; insulin (normally released more after onset of eating) reduces level of glucose in bloodstream (resulting in lower blood sugar and increased hunger); glucagon increases level of glucose
- ventromedial area of the hypothalamus may be involved in stopping eating when glucose level goes up; lateral hypothalamus appears to influence onset of eating when insulin level goes up
- person's weight set point and basal metabolic rate are tied to hypothalamus, and the hormone leptin appears to affect appetite
- hunger and eating behaviors are influenced by social cues and convention (e.g., eating at certain times), culture, and gender

## Why People Eat

**maladaptive eating**
- **obesity:** body weight 20% or more over ideal (based on height); significantly impacted by genetics, overeating, exercise, and changes in metabolism
- **anorexia nervosa**
- **bulimia nervosa**
- **binge-eating disorder**

LINK to Chapter Fourteen, Psychological Disorders

## PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. Damage to the _____ in rats can cause them to starve to death while damage to the _____ will cause them to eat and eat and eat.
   **a.** pancreas; stomach
   **b.** liver; kidneys
   **c.** ventromedial hypothalamus; lateral hypothalamus
   **d.** lateral hypothalamus; ventromedial hypothalamus
2. The rate at which the body burns energy while at rest is known as
   **a.** weight set point.
   **b.** basal metabolic rate.
   **c.** leptin.
   **d.** glucagon.
3. If calorie intake stays the same, as the basal metabolic rate decreases, the weight set point
   **a.** decreases.
   **b.** increases.
   **c.** stays the same.
   **d.** varies up and down.
4. Jermaine eats a late breakfast at 10:00 A.M. but finds he is hungry at 11:30 A.M. when he typically eats lunch. What best explains his hunger pains only 90 minutes after eating breakfast?
   **a.** heredity
   **b.** social pressure
   **c.** classical conditioning
   **d.** self-actualization
5. In cultures where Western lifestyles of eating and exercising have been adopted, obesity rates have _____ over the last 20 years.
   **a.** remained relatively stable
   **b.** decreased slightly
   **c.** doubled
   **d.** tripled
6. According to researchers at Yale, what might be one way to get children to eat more carrots?
   **a.** Include the word "healthy" on the outside of the package.
   **b.** Include a brief explanation of the amount of vitamins in carrots.
   **c.** Put a prize in the package.
   **d.** Put a cartoon character on the outside of the package.

9.7 9.8 9.9

Explore the Concept at MyPsychLab

## CONCEPT MAP

- physiological arousal is created by the sympathetic nervous system and is associated with brain activity in specific areas (e.g., the amygdala) and right or left hemisphere activity
- emotional expressions can vary across cultures but some expressions seem to be universal; display rules also vary across cultures and according to gender
- subjective labeling of emotion is largely a learned response, influenced by both language and culture

### Emotion

(is "feeling" aspect of consciousness, characterized by physiological arousal, specific expressive behavior, and inner awareness of feelings)

- Lazarus's **cognitive-mediational theory** places the emphasis on the cognitive appraisal and interpretation of the stimulus that causes the emotional reaction
- based on ideas from Darwin, the **facial feedback hypothesis** suggests that facial expressions (and other behaviors) provide feedback to the brain that can intensify or cause a specific emotion
- **James-Lange theory** suggests that specific stimuli result in physical arousal and leads to labeling of the emotion
- **Cannon-Bard theory** suggests that emotion and physiological arousal occur simultaneously
- **cognitive arousal theory** (Schacter-Singer) suggests that physiological arousal and the actual interpretation of that arousal based on cues from the environment must occur before the emotion itself is experienced

### Various Theories of Emotion

have been suggested, each with a slightly different focus and interpretation (see Fig. 9.13)

## PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. The phrase, "I'm embarrassed because my face is red" is best explained by which theory of emotion?
   **a.** Cannon-Bard
   **b.** James-Lange
   **c.** Schachter-Singer
   **d.** traditional theory of emotion

2. "I believe that emotions and physiological arousal tend to happen simultaneously." Which theorist would be responsible for making such a statement?
   **a.** Walter Cannon or Philip Bard
   **b.** William James or Carl Lange
   **c.** Stanley Schachter or Jerome Singer
   **d.** Sigmund Freud or Erik Erikson

3. One day at school, someone collides with you in the hall and knocks you down, causing you to be angry. However, when playing football with friends, if you get knocked down, you do not express anger. What theory best explains how we label each situation and choose the appropriate emotion to show?
   **a.** James-Lange
   **b.** Cannon-Bard
   **c.** Schachter-Singer
   **d.** facial feedback

4. In Schachter and Singer's classic study, participants who received epinephrine and were in the company of the "angry" research confederate interpreted their physiological arousal as _____, whereas those who were exposed to the "happy" confederate interpreted their arousal as _____.
   **a.** anger; happiness
   **b.** happiness; anger
   **c.** happiness; happiness
   **d.** anger; anger

5. Eileen smiles wherever she goes. She smiles a lot in the classroom, which in turn prompts her fellow students to smile, making them feel happier too. This effect is best explained by which of the following theories of emotion?
   **a.** James-Lange
   **b.** cognitive-mediational
   **c.** Schachter-Singer
   **d.** facial feedback

10.1 10.2

Explore the Concept at MyPsychLab

CONCEPT MAP

- physical sex characteristics are not the same as gender, the psychological aspects of identifying as a male or female
  - embryonic undifferentiated gonads develop into male or female sex organs as the result of chromosomes and hormones
    - chromosomal or hormonal defects can result in ambiguous sex organs/ intersexed individuals
  - **primary sexual characteristics:** present at birth, directly involved in reproduction
    - **female:** vagina, uterus, and ovaries
    - **male:** penis, testicles, scrotum, and prostate gland
  - **secondary sexual characteristics:** develop during puberty (indirectly involved in reproduction)
    - **female:** breast enlargement, widening of hips, pubic hair, fat deposits on buttocks and thighs
    - **male:** deepening of voice, facial and chest hair, pubic hair, coarser skin texture, increase in height

## The Physical Side of Human Sexuality

- **key concepts**
  - **gender roles:** cultural behavioral expectations for males or females
  - **gender typing:** process by which people learn gender roles
  - **gender identity:** sense of being male or female (influenced by both biology and environment)

## The Psychological Side of Human Sexuality: Gender

- **gender** is defined as the psychological aspects of being masculine or feminine and is influenced by culture, individual personality, and self-identity
  - **biological influences:** sexual characteristics of the genitals, hormonal differences, and possible differences in brain structure and processing
  - **environmental influences:** parental influences and cultural expectations to adhere to gender roles
  - **culture:** individualistic/nontraditional versus collectivistic/traditional role adoption

### PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. The sex structures that develop during puberty are categorized as
   **a.** primary sex characteristics.
   **b.** secondary sex characteristics.
   **c.** either primary or secondary sex characteristics.
   **d.** primary or secondary sex characteristics based on the culture.

2. Which of the following is a secondary sex characteristic?
   **a.** uterus
   **b.** penis
   **c.** enlarging breasts
   **d.** ovaries

3. People who are intersexual
   **a.** commonly have both ovaries and testes.
   **b.** are extremely rare—1 in a million births.
   **c.** have a mixture of male and female sexual characteristics.
   **d.** are people who suffer from gender dysphoria but are physically normal.

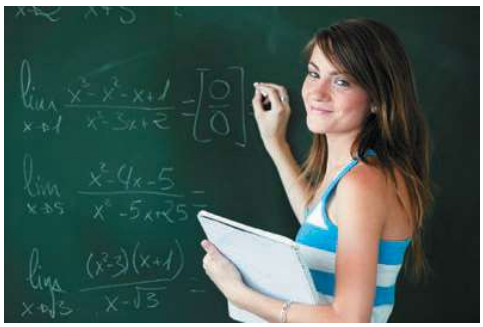
4. The process by which people learn their culture's preferences and expectations for male and female behavior is called
   **a.** gender role.
   **b.** gender identity.
   **c.** gender typing.
   **d.** gender stereotyping.

5. People whose sense of gender identity does not match their external appearance are known as
   **a.** intersexed.
   **b.** homosexual.
   **c.** hermaphrodites.
   **d.** transgendered.

6. In terms of the view of gender-role development in the United States, most scientists agree that our culture is _____, especially where women are concerned.
   **a.** individualistic
   **b.** collectivistic
   **c.** traditional
   **d.** somewhere in the middle

THINKING CRITICALLY:
How do you believe men and women are portrayed in today's media? Strong? Weak? Inept and unable to take care of themselves? Is it different for television, commercials, or movies?

"It's a guy thing."
© The New Yorker Collection 1995 Donald Reilly from cartoonbank.com. All Rights Reserved.



It was long believed that the difference between girls and boys in math skills was a function of biology, but research now shows that psychological and social issues are the more likely causes.

Are those differences due to biology, socialization, or a combination of the two influences?

**COGNITIVE DIFFERENCES** Researchers have long held that females score higher on tests of verbal abilities than do males, but that males score higher on tests of mathematical skills and spatial skills (Diamond, 1991; Voyer et al., 1995). Early explanations of these differences in cognitive functioning involved physical differences in the way each sex used the two hemispheres of the brain as well as hormonal differences (Witelson, 1991). Other research, however, strongly suggests that psychological and social issues may be more responsible for these differences, as these differences have become less and less obvious (Hyde & Plant, 1995; Kimura, 1999; Voyer et al., 1995; Watt, 2000). In particular, the supposed differences in math abilities between boys and girls have now been shown to be more the effect of girls' lack of confidence rather than any biological difference in the working of the brain (American Association of University Women, 1992, 1998; Else-Quest et al., 2010; Sadker & Sadker, 1994). That the disparities (which are actually quite small) seem to be disappearing as society has begun to view the two genders as more equal in ability is taken as a sign that more equal treatment in society has reduced the gender difference.

**SOCIAL AND PERSONALITY DIFFERENCES** The differences normally cited between men and women in the ways they interact with others and in their personality traits are often the result of stereotyped thinking about the sexes. It is difficult to demonstrate differences that are not caused by the way boys and girls are socialized as they grow up. Boys are taught to hold in their emotions, not to cry, to be "strong" and "manly." Girls are encouraged to form emotional attachments, be emotional, and be open about their feelings with others.

In communication, research suggests that when men talk to each other, they tend to talk about current events, sports, and other events. This has been called a "report" style of communication and seems to involve switching topics frequently, with attempts to dominate the conversation by certain members of the group. In contrast, women tend to use a "relate" style of communication with each other, revealing a lot about their private lives and showing concern and sympathy. They tend to interrupt each other less and let everyone participate in the conversation (Argamon et al., 2003; Coates, 1986; Pilkington, 1998; Swann, 1998). Another study, using fMRI technology, found that men listen with the left hemisphere only, whereas women listen with both hemispheres, suggesting that women pay attention to the tone and emotion of statements as well as the content (Lurito et al., 2000).

10.3 10.4

Explore the Concept at MyPsychLab

CONCEPT MAP

**theories of gender-role development**
- **social learning theory:** gender roles learned through observation and imitation of models
- **gender schema theory** (Bem): Piaget-like schemas and concepts for male and female develop and influence gender roles
- **gender stereotyping:** positive or negative characteristics assigned on basis of being male or female; can lead to sexism (prejudice)
- **androgyny** (based on Bem's work): positive aspects of both males and females, regardless of gender

## The Psychological Side of Human Sexuality: Gender

**gender differences**
- **cognitive differences** (e.g., listening skills) may be present but are possibly due to psychological and social issues rather than biology
- **social and personality differences** are often the result of stereotyped thinking about the sexes

10.1 10.2 10.3 10.4 10.5 10.6 10.7 10.8 10.9

10.5

Explore the Concept at MyPsychLab

CONCEPT MAP

Masters and Johnson discovered the four stages of the human sexual-response cycle through direct observation and measurement; study was highly controversial

## Human Sexual Behavior

**sexual-response stages** are similar in both females and males but not identical (see Figs. 10.3 and 10.4)

- **phase 1: excitement** — beginning of sexual arousal/preparation for intercourse (↑ pulse/blood pressure/breathing rate)
  - females: clitoris swells, vaginal lips open, vagina moistens
  - males: penis becomes erect, testes pull up, scrotum tightens
  - nipples harden/become erect in both sexes
- **phase 2: plateau**
  - females: outer vagina swells and outer lips flush due to ↑ blood flow, clitoris retracts under clitoral hood
  - males: penis becomes more erect, may release a few drops of seminal fluid
- **phase 3: orgasm**
  - shortest stage, consists of series of rhythmic muscular contractions
  - females can experience multiple orgasms; males typically only have one orgasm that results in release of seminal fluid/sperm
- **phase 4: resolution** — return of the body to prearousal state; males have a refractory period during which another erection is not possible

PRACTICE **quiz** How Much Do You Remember? ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. Which of the following is the first phase of the human sexual response cycle?
   **a.** excitement **c.** orgasm
   **b.** plateau **d.** resolution
2. In which of the phases of sexual response do the testes pull up?
   **a.** excitement **c.** orgasm
   **b.** plateau **d.** resolution
3. Which phase of the sexual response is typically the shortest, lasting a few seconds to several minutes?
   **a.** excitement **c.** orgasm
   **b.** plateau **d.** resolution
4. Which of the following phases does not occur in women?
   **a.** excitement **c.** orgasm
   **b.** plateau **d.** refractory period

## DIFFERENT TYPES OF SEXUAL BEHAVIOR

10.6 **What did the early and most recent surveys of human sexual behavior reveal?**

While Masters and Johnson focused their research on the physiological responses that occur during the sexual act, other researchers had already been studying the different forms of sexual behavior. The study of sexual behavior is not the study of the sex act, but rather when, with whom, and under what circumstances sexual acts take place. Although there were other attempts to study human sexual behavior before the mid-twentieth-century studies of Alfred Kinsey (Kinsey et al., 1948; Kinsey et al., 1953), his original work remains an important source of information concerning the different ways in which people engage in the sex act. A movie based on Kinsey's life and work was released in the United States in 2004. Even more than half a century later, Kinsey's work is still so controversial that many movie theaters in the United States refused to show the film.

Watch the Video, *Special Topics: Cultural Norms and Sexual Behavior*, at MyPsychLab

What were the findings of the report?

**THE KINSEY STUDY** In 1948, Alfred Kinsey published a controversial report on the results of a massive survey of sexual behavior collected from 1938 forward (Kinsey et al.,

10.6 10.7

Explore the Concept at MyPsychLab

CONCEPT MAP

## Human Sexual Behavior

- **differences in sexual behavior**
  - Kinsey pioneered the study of different types of sexual behavior through face-to-face surveys; study was highly controversial; sampling/representativeness questioned
    - suggested sexual orientation occurred on a continuum, not an either/or basis
  - the Janus Report (first large-scale survey since Kinsey) examined both normal and deviant sexual behavior
- **sexual orientation** person's sexual attraction and affection for members of the opposite or same sex
  - key concepts
    - **heterosexuality:** attraction to members of the opposite sex; most common and socially acceptable
    - **homosexuality:** attraction to members of one's own sex
    - **bisexuality:** attraction to members of both sexes
  - sexual orientation is likely the product of both biology (i.e., brain structure, genetics) and environment; presence of biological foundations has implications for societal definitions of diversity versus deviance

PRACTICE quiz How Much Do You Remember? ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. According to researcher Alfred Kinsey, sexual orientation is best described as
   a. typically an "either/or" state where most people are found to be either heterosexual or homosexual.
   b. typically on a "continuum" with some people falling at either extreme and some falling closer to the middle.
   c. typically bisexual in nature though many were unaware of it.
   d. an unknown because people were busy exploring their sexuality.
2. In Kinsey's original data, approximately _____ of women reported being predominantly homosexual while as many as _____ of men reported the same.
   a. 6 percent; 21 percent
   b. 6 to 14 percent; 46 percent
   c. 2 percent; 22 percent
   d. 2-6 percent; 10 percent
3. Which of the following was a criticism of Kinsey's research?
   a. The study was incomplete.
   b. The study asked poorly worded questions.
   c. The study was rushed.
   d. The study had a restricted sample.
4. Robert Trivers's theory of parental investment states that a _____ desire to engage in sex at an early age results from _____.
   a. man's; social pressure
   b. man's; evolution
   c. woman's; biological concerns
   d. woman's; psychological pressure
5. One study found that the major reason for decrease in sexual activity in later adulthood was primarily due to
   a. a loss of interest in sex.
   b. fewer opportunities to find an available partner.
   c. a belief that sex and sexual fantasies in late adulthood was unhealthy.
   d. a desire to channel energy into other tasks.
6. The Savic et al. 2005 study found that homosexual men responded to a pheromone in the same way as
   a. heterosexual men.
   b. transsexual men.
   c. heterosexual women.
   d. homosexual women.

## Sexual Dysfunctions and Problems

10.8 How do physical and psychological sexual problems differ?

What about when people have problems with sex, like impotence?

A **sexual dysfunction** is a problem with sexual functioning, or with the actual physical workings of the sex act. Sexual dysfunctions involve problems in three possible areas of sexual activity: sexual interest, arousal, and response. Broadly speaking, sexual

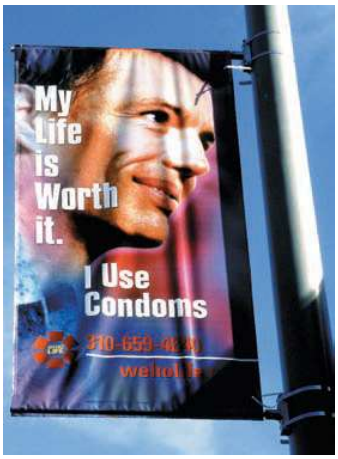
Contrary to a lot of myths about HIV, there is no scientific proof or documented cases of HIV being passed through tears or ordinary saliva. Kissing an infected person will not result in transmission, although it is possible to transmit the virus through oral sex or, rarely, through deep kissing when there are open sores or bleeding gums in the mouth of either party. More troubling is the finding that HIV can be transmitted to children who are fed by mothers who have "prechewed" food (a practice that occurs in several countries and cultures, including that of the United States). This is not common, though, and HIV cannot normally be transmitted through saliva; the women studied in this report all had sores or inflammations in their mouths, or the infants had cuts associated with teething in their mouths (Guar, 2008).

By the end of the year 2007, the number of estimated cases of AIDS in the United States had reached nearly half a million people, with the highest estimates by state existing in California, Florida, New York, and Texas (Centers for Disease Control and Prevention, 2009a). Over a quarter of a million people in the United States are living with HIV but not AIDS. However, this number is probably a vast underestimate, as many HIV infections remain undiagnosed or unreported. The CDC estimates that about 1.1 million adults and adolescents in total are currently living with HIV in the United States (Centers for Disease Control, 2013, Feburary).

Treatments have improved greatly over the past decade, increasing the life expectancy of people with HIV or AIDS (Centers for Disease Control, 2013). Highly active antiretroviral therapy, or HAART for short, is a powerful "cocktail" of at least three and sometimes more medications aimed at reducing the virus in the blood so that it is no longer detectable. While it is not a cure, this treatment can delay progression from HIV to AIDS and improve immune system health (Cohen et al., 2011; Dieffenbach & Fauci, 2011).

In other cultures, AIDS is also taking a devastating toll. The most heavily hit areas in the world right now are the countries of sub-Saharan Africa, where an estimated 22.4 million people were living with HIV at the end of 2007—nearly two-thirds of the total HIV infections in the world (Joint United Nations Programme on HIV/AIDS [UNAIDS], 2009b). In 2008, 1.4 million people died from AIDS in these countries, and more than 14 million children were orphaned by AIDS (UNAIDS, 2007, 2009b). The Applying Psychology in Everyday Life section at the end of this chapter examines the course of AIDS in Russia—a region that is quickly becoming another AIDS "hot spot."

**Explore** the **Concept**, *AIDS Timeline*, at **MyPsychLab**




Not too many years ago, no one would have dared to advertise condoms in such a public manner. The only consequences of unsafe sex were unwanted pregnancies and serious, but not necessarily life-threatening, sexually transmitted infections. With the onslaught of the AIDS virus, safe sex has taken on a whole new meaning.



10.8 10.9

**Explore** the **Concept** at **MyPsychLab**

CONCEPT MAP

**sexual dysfunctions and problems**
- sexual dysfunctions are problems with sexual functioning or physical aspects of the sex act
- paraphilias are disorders characterized by unusual or socially unacceptable sexual behaviors

## Sexual Dysfunctions, Problems, and Infections

**sexually transmitted infections (STIs)**
- infections spread through unprotected sexual contact (see Table 10.1)
  - affect sex organs or have broader, life-threatening effects
  - bacterial infections may be treatable with antibiotics if caught early; viruses are difficult to treat and may be incurable
- acquired immune deficiency syndrome (AIDS)
  - caused by a viral infection, the human immunodeficiency virus (HIV)
  - onset often associated with opportunistic infections
  - has no known cure, can affect females and males of all sexual orientations, and continues to impact cultures world-wide

11.1 11.2

Explore the Concept at MyPsychLab

CONCEPT MAP

**Stress and Stressors**

- stress is the physical, emotional, cognitive, and behavioral response to events that are appraised as threatening or challenging; first studied systematically by Hans Selye
  - can include physical fatigue, recurring illness, over/under eating, smoking/drinking more than usual, mood swings, irritability, depression, anger, memory and concentration problems
- stress-causing events are called stressors; can come from external or internal sources; range from mild to severe
  - negative events cause distress; positive events cause eustress, the optimal level of stress required to facilitate healthy adaptation and well-being
  - external stress-causing events may include catastrophes, major life changes, and daily hassles (differ according to developmental stage)
  - can be assessed systematically (e.g., Social Readjustment Rating Scale, College Undergraduate Stress Scale)

PRACTICE quiz How Much Do You Remember? ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. Studies show that _____ is the optimal amount of stress that people need to positively promote their health and sense of well-being, which coincides with _____ theory.
   a. intensity; cognitive consistency
   b. distress; biological instinct
   c. eustress; arousal
   d. eustress; Maslow's
2. What is a primary application of the Social Readjustment Rating Scale (SRRS) developed by Holmes and Rahe?
   a. to estimate your potential level of stress for the next 36 months
   b. to estimate your risk of illness or having an accident in the near future
   c. to estimate how long you will live based on your current lifestyle
   d. to estimate your risk of cancer
3. What does the Social Readjustment Rating Scale (SRRS) use to determine its results?
   a. The SRRS asks users to subjectively rate their stress level.
   b. The SRRS examines diet and family history to determine one's overall health risks.
   c. The SRRS records specific positive and negative life events to determine an individual's current level of stress.
   d. The SRRS looks exclusively at any catastrophes that a person has experienced.
4. Who, if anyone, would consider going shopping as a daily hassle and therefore stressful?
   a. adolescents
   b. those in their 20s and 30s
   c. senior citizens
   d. Hassles are stressful at any age, and studies do not find shopping to be a stressor or hassle at any age.

THINKING CRITICALLY:
What aspects of college life do you find most stressful? What makes these particular ones more stressful than others?

## PSYCHOLOGICAL STRESSORS: WHAT, ME WORRY?

### 11.3 What are some psychological factors in stress?

Although several specific stressors (such as marriage, car problems, etc.) have already been mentioned, the psychological reasons why people find these events stressful fall into several categories.

**PRESSURE** When there are urgent demands or expectations for a person's behavior coming from an outside source, that person is experiencing **pressure**. Pressure occurs when people feel that they must work harder, faster, or do more, as when meeting a deadline or studying for final exams.

Time pressure is one of the most common forms of pressure. Although some people claim to "work well under pressure," the truth is that pressure can have a negative impact on a person's ability to be creative. Psychologist Teresa Amabile has

It is fairly common to face **multiple approach–avoidance conflicts** in daily life. In a multiple approach–avoidance conflict, one would have more than two goals or options to consider, making the decision even more difficult and stressful. For many college students, deciding on a specific school or a career major is actually this type of conflict.

11.3

Explore the Concept at MyPsychLab

CONCEPT MAP

- **pressure** urgent demands or expectations
  - **uncontrollability** lower sense of control associated with greater stress
    - **frustration** due to external (losses, rejections, failures, delays) or internal (personal characteristics) factors; can result in several typical responses
      - **persistence**
      - **aggression**
      - **escape/withdrawal** (suicide is a drastic form of escape)
    - **conflict**
      - **approach–approach conflict** does not involve a great deal of stress; person experiences attraction to two or more desires or goals
      - **avoidance–avoidance conflict** is more stressful; choice between two or more undesirable situations
      - **approach–avoidance conflict** can be most stressful; single goal or event has both positive and negative aspects
      - **multiple approach–avoidance conflicts** are fairly common in daily life (e.g., **double approach–avoidance**) due to life decisions affecting two or more goals

## Stress and Stressors (continued)

(psychological stressors are often related to external events)

### PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. Jorgé has deadlines and expectations placed on him both at school and at work, making him feel like he always has to do more and to work harder and faster. Jorgé is experiencing
   **a.** frustration. **c.** pressure.
   **b.** uncontrollability. **d.** conflict.

2. A retail store has announced to its employees that half of them will be laid off after a two-week, random review of their personnel records. No current performance appraisals or individual interviews are being held. Over the next two weeks, many of the employees are arguing, fighting, and doing a poor job of taking care of their customers. What aspects of stress most likely started these behaviors?
   **a.** pressure and conflict
   **b.** uncontrollability and frustration
   **c.** pressure and frustration
   **d.** uncontrollability and conflict

3. Lisa wants the lead singing part in the next school musical but by all accounts, she is not musically gifted in any way and has a rather unpleasant singing voice. Lisa may eventually realize her lack of singing ability is an _____ frustration.
   **a.** internal **c.** unacceptable
   **b.** external **d.** extrinsic

4. The first response that people typically make when frustrated is to
   **a.** try again. **c.** get creative.
   **b.** get angry. **d.** give up.

5. Marriage is sometimes perceived as a unique stressor. On one hand, you have many good aspects such as finding that special someone, long-term commitment, and sometimes even combined incomes. On the other hand, there is a perceived loss of independence, a sense of finality, and the fear of "what if this isn't the right one?" Therefore marriage may be seen as an example of a _____ conflict.
   **a.** approach–approach
   **b.** avoidance–avoidance
   **c.** approach–avoidance
   **d.** double approach–avoidance

3. Optimists are far less likely than pessimists to become depressed, and depression is associated with mortality because of the effect of depression on the immune system.
4. Optimists have more effectively functioning immune systems than pessimists do, perhaps because they experience less psychological stress.

Seligman (1998) has also found that optimists are more successful in their life endeavors than pessimists are. Optimistic politicians win more elections, optimistic students get better grades, and optimistic athletes win more contests. For some advice on how to become more optimistic, see the Applying Psychology feature at the end of this chapter.

11.4 11.5

Explore the Concept at MyPsychLab

CONCEPT MAP

the **autonomic nervous system (ANS)** figures prominently in the body's physiological reactions to stress

## Physiological Factors

Hans Selye identified the **general adaptation syndrome (GAS)**, the sequence of physiological reactions the body goes through when adapting to a stressor

- **alarm:** sympathetic nervous system is first activated
- **resistance:** continued activation of sympathetic activity until organism's resources are depleted
- **exhaustion:** prolonged stress response coupled with depleted resources can lead to stress-related diseases or death of the organism; if stressor is stopped, parasympathetic division is activated and body attempts to replenish resources

the field of **psychoneuroimmunology** focuses on the effects of stress on the immune system

- stress-related responses similar to those triggered by infection—increase in white blood cell count, enzymes, and antibodies
- body is engineered for short-term, acute stress; prolonged stress/depletion of resources results in reduced functioning of immune system

## Cognitive and Personality Factors

**Lazarus's cognitive–mediational theory of emotions** suggests an individual's appraisal of a stressor is a major factor in determining how stressful that stressor becomes

- **primary appraisal** involves estimating severity of the stressor and classifying it as a threat, challenge, or loss already occurred
- **secondary appraisal** involves estimation of resources available to cope with stressor

result of appraisal determines level of stress and emotional reaction

**personality differences** affect how one assesses a stressor, the coping strategies used, and possible health outcomes

- **Type A:** workaholic, competitive, ambitious, hate to waste time, easily annoyed; more likely to have health issues (e.g., heart disease), especially the more hostile an individual is
- **Type B:** more easygoing, slower to anger, not as competitive or driven; less likely to have health issues
- **Type C:** tend to be pleasant and at peace but find it difficult to express emotions, especially negative ones; associated with cancer
- **"Type H":** hardy personality, appear to be like Type A but less prone to heart disease; appear to thrive on stress due to three factors: sense of commitment, control, and seeing stressors as a challenge

**explanatory style** optimists tend to look for positive outcomes, whereas pessimists seem to expect the worst

- Seligman (originally studied concept of learned helplessness) began the positive psychology movement; has suggested that optimism leads to longer life and greater success in life endeavors
- optimism is associated with controlling mood or emotional reactions; can be a learned skill through alternative thinking, relaxation, and correcting faulty thinking

11.6

Explore the Concept at MyPsychLab

CONCEPT MAP

## Social Factors in Stress

- a great deal of stress can come from dealing with other people and social interactions
  - poverty and job stress are prominent, economically based social factors that lead to stressful living conditions
    - poverty results in lack of basic life necessities
    - job stress may be related to workload, lack of control or job security, work schedule, and low job satisfaction
  - culturally, stress is affected by status of acculturation (adapting to a new, different, or often dominant culture) and the method chosen to adapt
    - **integration:** original identity maintained but forms positive relationships with members of dominant culture (lowest stress)
    - **assimilation:** individual gives up old culture and completely adopts ways of majority (moderate stress)
    - **separation:** majority culture is rejected and original cultural identity is maintained (high stress)
    - **marginalization:** does not maintain contact with original culture or join majority culture (greatest stress)
  - in general, having a positive social support system that provides various forms of help (e.g., monetary, physical, emotional support) is a good predictor for healthy aging and longevity

PRACTICE **quiz** How Much Do You Remember? ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. What are considered the two most prominent social factors in creating stressful living conditions?
   **a.** poverty and job stress
   **b.** income level and marital status
   **c.** overall health and personality
   **d.** motivation level and heredity
2. Devon is a full-time college student who has not taken a semester off in three years. He increasingly finds himself fatigued and stressed by the seemingly never-ending stream of papers, exams, and group projects. It has gotten to the point where he lacks the energy to work on his projects and put little effort into his studying, figuring "What's the point?" What might Devon be experiencing?
   **a.** Devon is simply stressed. Nothing more.
   **b.** Devon is suffering from acculturative stress.
   **c.** Devon is suffering from burnout.
   **d.** Devon is suffering from eustress.
3. Joaquin moved from Nicaragua to the United States. He learned to speak and write English, changed his last name so that it would sound more "American," and no longer maintains any of his old culture's styles of dress or customs. Joaquin has used which method of entering the majority culture?
   **a.** integration **c.** separation
   **b.** assimilation **d.** marginalization
4. What does the greatest acculturative stress typically come from?
   **a.** integration **c.** separation
   **b.** assimilation **d.** marginalization

THINKING CRITICALLY:
In general, studies show that people who have social support are better able to deal with the effects of stress, but this does not mean that all social relationships have a positive effect on one's ability to cope. How can the people in your life interfere with your ability to handle stress, and what are some positive ways in which you can reduce that interference?

## Coping With Stress

I have exams and my job and my relationship to worry about, so I feel pretty stressed out—how do people deal with all the stress they face every day?

So far, this chapter has talked about what stress is and the factors that can magnify the effects of stress, as well as the effects of stress on a person's physical health. Effectively dealing with stress involves increased awareness so changes can be made in factors that are actually controllable. Participate in the experiment *Will This Survey Stress You Out?* to evaluate the level of stress in your life and what methods you use to cope with it.

Another way that religion helps people cope involves the rituals and rites that help people feel better about personal weaknesses, failures, or feelings of inadequacy (Koenig et al., 2001). These include rituals such as confession of sins or prayer services during times of stress. Religion can also increase the likelihood that a person will volunteer to help others, and feel stronger and better in many ways. Finally, religious beliefs can give meaning to things that otherwise seem to have no meaning or purpose, such as viewing death as a pathway to a paradise, or the destruction of one's home in a natural disaster as a reminder to place less attachment on material things.

Many religions also encourage healthy behavior and eating habits—eating wisely; limiting or forgoing the use of alcohol, tobacco, and other drugs; and sanctioning monogamous relationships. Some research even suggests that people with religious commitments live longer than those who have no such beliefs, although this is correlational research (LINK to Learning Objective 1.9) and should not be interpreted as concluding that religious belief causes longer life expectancies (Hummer et al., 1999; Koenig et al., 1999; Lambert et al., 2013; Strawbridge et al., 1997; Thoresen & Harris, 2002).

11.7 11.8

Explore the Concept at MyPsychLab

CONCEPT MAP

**coping strategies**
are behavioral and psychological actions taken to master, tolerate, reduce, or minimize the effect of stressors

**problem-focused coping**
involves working to change or eliminate the stressor itself

**emotion-focused coping**
involves changing the way a person feels or emotionally reacts to a stressor

various methods and behaviors exist to help individuals in dealing with stress

- meditation, in its various forms, helps to promote relaxation, calm anxiety, improve sleep, and lower blood pressure
- an individual's culture and/or religious beliefs can affect the appraisal of events as more or less stressful, the coping strategies adopted, and support systems that can offer assistance

**Coping With Stress**

## PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

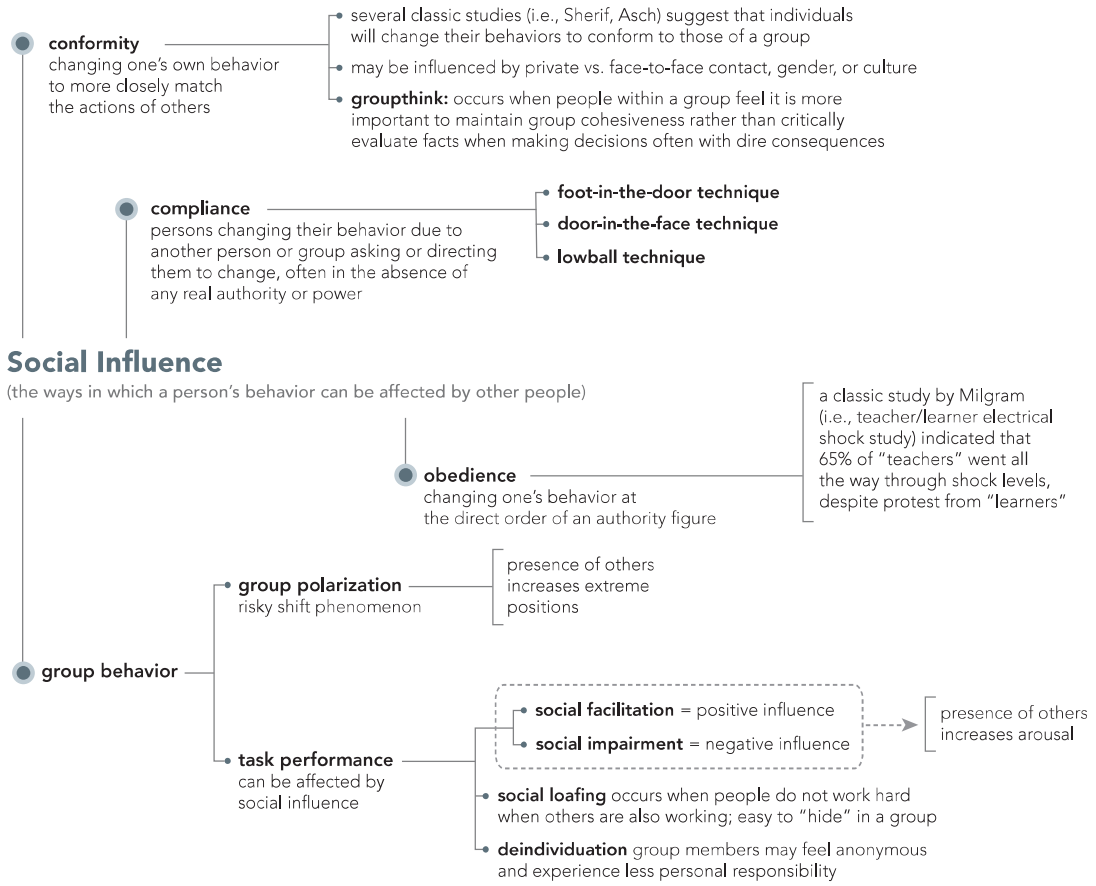
1. Wanda explains that she ignores her problems when she feels she cannot control them or when she worries about them to the point of causing problems elsewhere in her life. What does the research say about using such an approach?
   **a.** This method can be somewhat harmful, even if only used occasionally.
   **b.** This method is helpful only if you are a Type B personality.
   **c.** This method is fine when the stressor cannot be eliminated or worrying about the stressor causes problems.
   **d.** This method is dangerous, since a stressor really must be dealt with so as to feel better.
2. What does the research tell us about the effects of laughter on alleviating stress?
   **a.** Laughter can alleviate immediate stress but the effects last only a few minutes.
   **b.** Laughter has been shown to help the immune system.
   **c.** Laughter in reality has little to no effect on one's overall stress level.
   **d.** Laughter can actually have a negative effect on the body.
3. Simply put, what type of stress reduction is tai chi, the focusing of the mind on specific movements of the body?
   **a.** optimism
   **b.** meditation
   **c.** personality type
   **d.** progressive muscle relaxation
4. Meditation, progressive muscle relaxation, and guided visualization are _____ coping strategies for stress.
   **a.** very effective
   **b.** basically ineffective
   **c.** emotion-focused
   **d.** problem-focused
5. What effect, if any, does religion have on one's stress?
   **a.** Religion has not been shown to effect one's stress.
   **b.** Religion can actually increase one's stress.
   **c.** Religion can help to alleviate stress in young people, but not in senior citizens.
   **d.** Religion can help people effectively cope with stress in multiple ways.

THINKING CRITICALLY:
What methods of stress reduction do you typically rely on? How effective do you believe them to be? Why?

12.1 12.2 12.3

Explore the Concept at MyPsychLab

## CONCEPT MAP


Social Influence
(the ways in which a person's behavior can be affected by other people)
conformity
changing one's own behavior to more closely match the actions of others
several classic studies (i.e., Sherif, Asch) suggest that individuals will change their behaviors to conform to those of a group
may be influenced by private vs. face-to-face contact, gender, or culture
groupthink: occurs when people within a group feel it is more important to maintain group cohesiveness rather than critically evaluate facts when making decisions often with dire consequences
compliance
persons changing their behavior due to another person or group asking or directing them to change, often in the absence of any real authority or power
foot-in-the-door technique
door-in-the-face technique
lowball technique
obedience
changing one's behavior at the direct order of an authority figure
a classic study by Milgram (i.e., teacher/learner electrical shock study) indicated that 65% of "teachers" went all the way through shock levels, despite protest from "learners"
group behavior
group polarization
risky shift phenomenon
presence of others increases extreme positions
task performance
can be affected by social influence
social facilitation = positive influence
social impairment = negative influence
presence of others increases arousal
social loafing occurs when people do not work hard when others are also working; easy to "hide" in a group
deindividuation group members may feel anonymous and experience less personal responsibility

## PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. In Asch's study, conformity decreased when
   - **a.** at least four confederates were present.
   - **b.** at least one confederate agreed with the participant.
   - **c.** the participant was a male.
   - **d.** the participant had high self-esteem.
2. Which of the following would not be effective in minimizing groupthink?
   - **a.** Caroline wants her team to openly vote by a show of hands either for or against her business plan.
   - **b.** Karen openly invites input from all team members and even those outside her team.
   - **c.** Annina reminds her team that everyone will be held responsible for the ultimate decision of her group.
   - **d.** Juanita works hard to remain impartial to all ideas no matter what they are.
3. One of the keys to deindividuation is
   - **a.** group polarization.
   - **b.** group protection.
   - **c.** conformity.
   - **d.** anonymity.
4. Conner needs just $20 more to go out with his friends. He asks his mother for $50 but she tells him he can have $30 instead. In the end, Conner ended up with $10 more than he originally planned. What technique did Connor use?
   - **a.** foot-in-the-door technique
   - **b.** door-in-the-face technique
   - **c.** lowball technique
   - **d.** planned obedience
5. Follow-up research to Stanley Milgram's original study has found that _____of "teachers" will deliver shocks up to the point of being lethal.
   - **a.** less than 30 percent
   - **b.** 40 percent
   - **c.** over 60 percent
   - **d.** over 80 percent

THINKING CRITICALLY:
Can you think of a time when you conformed with a group of friends? Did you believe their decision to do something was a poor decision? Did you conform with the group and go along with the behavior anyways? Why? Based on Asch's studies and studies on groupthink, what might have kept you from objecting?

action, this neurological finding is not surprising. But researchers at Yale University have found surprising evidence for cognitive dissonance in both 4-year-old humans and capuchin monkeys—two groups that are not normally associated with having the developed higher-level mental abilities thought to be in use during the resolution of dissonance (Egan et al., 2007; Egan et al., 2010). Are monkeys and pre-school humans more complex thinkers than we had assumed? Or are the cognitive processes used to resolve dissonance a lot simpler than previously indicated? Obviously, there are still questions to be answered with new research in cognitive dissonance.



Explore the Concept at MyPsychLab

## CONCEPT MAP

**Social Cognition**
- focuses on the ways in which people think about other people and how those cognitions affect behavior
- **attitudes** — tendency to respond positively or negatively toward a certain idea, person, object, or situation; learned through experience
  - comprise affective, behavioral, and cognitive components
  - are not great predictors of behavior although tend to have more influence as they become more specific and salient
  - attitude formation can be the result of several processes
    - **direct contact**
    - **direct instruction**
    - **interaction with others**
    - **vicarious learning**
  - can change through persuasion and are contingent upon both the message and the target audience; elaboration likelihood model suggests that the route/level of information processing (central vs. peripheral) influences ease of persuasion
- **cognitive dissonance** — emotional discomfort as the result of engaging in behavior that is inconsistent with personal cognitions
  - can be reduced by (1) changing behavior, (2) changing cognition, or (3) forming new cognitions to justify behavior

## PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. Studies have found that attitudes are primarily the result of
   **a.** heredity. **c.** traumatic incidents.
   **b.** hormonal chemistry. **d.** learned behavior.
2. Which of the following represents the affective component of an attitude?
   **a.** "I love to go to the clubs—it makes me so happy!"
   **b.** "Tonight, we're going to that new club downtown."
   **c.** "It is interesting to watch people when I'm out at a club."
   **d.** "I'm going to wear a new outfit to the club tonight."
3. Erin hates snakes, even though she has never been bitten or been close to one. She developed her feelings by seeing how scared her mother was when she came across them in the garden, or even when watching a movie or television show where there was a snake. Erin's attitude toward snakes was most likely acquired through
   **a.** direct contact. **c.** interaction with others.
   **b.** direct instruction. **d.** vicarious conditioning.
4. As an attorney, you always recommend to your clients that they dress up in professional clothes for their day in court. What aspect of persuasion are you focusing upon?
   **a.** the source **c.** the audience
   **b.** the message **d.** the media
5. One of your friends tells you, "I didn't like the environmental-awareness presentation today. First of all it was too long, not to mention the person that gave it was drinking out of a polystyrene cup and drove away in a huge SUV." What kind of processing might your friend be using?
   **a.** central-route processing
   **b.** peripheral-route processing
   **c.** cognitive-route processing
   **d.** visual-route processing
6. In the famous Festinger experiment, participants were paid either $1 or $20 to lie to a woman in the waiting room about how interesting a task really was. The participants who convinced themselves that the task really was fun were the ones who were
   **a.** paid immediately. **c.** paid only $1.
   **b.** paid after one day. **d.** paid $20.

THINKING CRITICALLY:
Imagine that you are asked to create a television commercial to sell a new product. Given what you know of the factors that effectively influence persuasion, how might you persuade a customer?

Lee et al., 1996; Morris & Peng, 1994; Morris et al., 1995; Norenzayan et al., 1999) strongly suggests that in more interdependent, collectivist cultures found in China, Hong Kong, Japan, and Korea, people tend to assume that external situational factors are more responsible for the behavior of other people than are internal dispositional factors—a finding that is exactly the reverse of the fundamental attribution error so common in the United States and other individualist Western cultures.

Even age is a factor in how likely someone is to fall prey to the fundamental attribution error. Several studies (Blanchard-Fields & Horhota, 2005; Follett & Hess, 2002; Leclerc & Hess, 2007) have found that older adults show a stronger bias toward attributing the actions of another to internal causes than do younger people.



12.6 12.7

Explore the Concept at MyPsychLab

## Social Cognition: (continued) Impression Formation and Attribution

**CONCEPT MAP**

- **impression formation** forming of first knowledge about another person; influenced by primacy effect
- **social categorization** automatic and unconscious assignment of a new acquaintance to some category or group
  - **stereotypes:** set of characteristics believed to be shared by all members of a particular category; can be useful (by limiting information processing)
  - categories assigned are based on implicit personality theory, the set of assumptions formed in childhood about different types of people
- attribution is a process by which we explain both our own behavior and the behavior of others; based on attribution theory (Heider)
  - **situational:** cause of behavior is assumed to come from external sources
  - **dispositional:** cause of behavior is assumed to come from within the individual
  - **fundamental attribution error** is the tendency to overestimate the influence of another person's internal characteristics on behavior and underestimate the external/situational factors; influenced by age and culture

### PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. If you were to describe impression formation in just one word, what would that be?
   **a.** control **c.** feelings
   **b.** prediction **d.** communication
2. According to the phenomenon known as social categorization, what is most influential in helping us form an attitude about someone or something?
   **a.** Those things that happen first, also known as the primacy effect.
   **b.** Those things that happen last, also known as the recency effect.
   **c.** Those things that happen in the middle.
   **d.** That which is repeated several times.
3. Kohanna thinks that everyone who smiles must always be happy and those people who are quiet must be naturally shy. Such assumptions are the bases for
   **a.** stereotypes. **c.** attribution theory.
   **b.** implicit personality theory. **d.** attitudes.
4. Caleb almost always shows up late for work. His friends attribute this to Caleb's laziness. This is an example of a _____ cause.
   **a.** situational **c.** dispensational
   **b.** dispositional **d.** superficial
5. How might someone who unknowingly is committing the fundamental attribution error explain Stanley Milgram's obedience study?
   **a.** Subjects in that study were highly influenced by the power of Milgram and his team.
   **b.** Subjects in that study desired a high degree of positive reinforcement.
   **c.** Subjects in that study wanted to be part of Milgram's group.
   **d.** Subjects in that study must have been the kind of people that like to hurt others.

In a **"jigsaw classroom,"** students have to work together to reach a specific goal. Each student is given a "piece of the puzzle," or information that is necessary for solving the problem and reaching the goal (Aronson et al., 1978; Clarke, 1994). Students then share their information with other members of the group. Interaction between diverse students is increased, making it more likely that those students will come to see each other as partners and form friendly relationships rather than labeling others as members of an out-group and treating them differently. This technique works at the college level as well as in the lower school grades (Johnson et al., 1991; Lord, 2001).



12.8 12.9

Explore the Concept at MyPsychLab

## CONCEPT MAP

**prejudice**
unsupported and negative stereotypes (e.g., ageism, sexism, racism, etc.) about members of a particular social group

- **social cognitive theory** suggests that prejudice is an attitude formed as others are formed
- **realistic conflict theory** suggests that when resources are limited, prejudice and discrimination are closely tied to an increasing degree of conflict between groups that seek common resources
- **social identity theory** suggests three processes are responsible for the formation of a person's identity within a social group—categorization, identification, and comparison
- **stereotype vulnerability** (knowledge of someone else's stereotyped opinions) can result in self-fulfilling prophecy and is related to stereotype threat when situational anxiety occurs if a person's behavior might confirm a stereotype
- **prejudice can be overcome** through education, equal status intergroup contact, and working together to achieve a specific goal (e.g., the "jigsaw classroom")

## Social Interaction: Prejudice and Discrimination

**discrimination**
occurs when prejudicial attitudes cause members of a social group to be treated differently than others in situations calling for equal treament

- can vary based on existence of in-groups and out-groups
- **scapegoating** (target for frustrations and negative emotions) typically occurs for members of an out-group

## PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. Prejudice is about _____ while discrimination is about _____.
   **a.** beliefs; perceptions
   **b.** perceptions; beliefs
   **c.** behavior; attitudes
   **d.** attitudes; behavior

2. Jewell and Amie became friends while taking an evening class at the local community college. Jewell was later horrified to find out that Amie was actually a teacher at the college. Subsequently, Jewell stopped talking with Amie, thus ending their friendship. What theory of prejudice and discrimination might this be an example of?
   **a.** stereotype vulnerability theory
   **b.** in-group/out-group theory
   **c.** realistic conflict theory
   **d.** social cognitive theory

3. In teacher Jane Elliot's classic study, the most startling finding was that the
   **a.** the in-group was kinder to the out-group.
   **b.** the out-group was less prejudiced.
   **c.** test scores dropped for each group during their respective turn as the out-group.
   **d.** children were unwilling to discriminate with respect to the others.

4. Which of the following would be the most effective way to decrease prejudice?
   **a.** Create an environment of equal status, where groups must rely upon each other to solve a common problem.
   **b.** Bring groups together to talk about their feelings.
   **c.** Bring groups together and allow them to work next to each other.
   **d.** Bring groups together for a friendly competition.

THINKING CRITICALLY:
What was the first time you became aware that you had a prejudiced attitude toward something or someone? How did you confront that knowledge?

many non-Western cultures, companionate love is seen as more sensible. Choices for a mate on the basis of compatibility are often made by parents or matchmakers rather than the couple themselves (Duben & Behar, 1991; Hortaçsu, 1999; Jones, 1997; Thornton & HuiSheng, 1994).

Finally, when all three components of love are present, the couple has achieved *consummate love*, the ideal form of love that many people see as the ultimate goal. This is also the kind of love that may evolve into companionate love when the passion lessens during the middle years of a relationship's commitment.

12.10

Explore the Concept at MyPsychLab

## Social Interaction: (continued) Interpersonal Attraction

CONCEPT MAP

- liking or having the desire for a relationship with someone else; can be influenced by a variety of factors
  - **physical attractiveness**
  - **proximity**
  - **similarity**
  - **complementary qualities**
  - **reciprocity of liking**
- **love** strong affection for another person due to kinship, personal ties, sexual attraction, admiration, or common interests
  - **Sternberg's triangular theory** suggests different components and types of love
    - three components
      - **intimacy**
      - **passion**
      - **commitment**
    - three types
      - **romantic** (intimacy and passion)
      - **companionate** (intimacy and commitment)
      - **consummate** (intimacy, passion, and commitment)

### PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. The more you see someone, the more likely you are to like that person. Such a phenomenon is often due to
   **a.** reciprocity of liking. **c.** mere exposure.
   **b.** similarity. **d.** proximity.
2. What does the research say about the concept of opposites attract?
   **a.** While it goes against the concept of similarity, it is real and research can prove it.
   **b.** Opposites attract is really more an example of proximity although studies show that opposites can and often are attracted to one another.
   **c.** Research notes that opposites attract but is unable to explain why this happens.
   **d.** Studies do not support this idea but instead offer the explanation of complementary qualities.
3. In grade school, 12-year-old Chase does not know 12-year-old Corrine well, but starts to like her when he hears from her friends that she has a crush on him. This is an example of
   **a.** reciprocity of liking. **c.** mere exposure.
   **b.** similarity. **d.** proximity.
4. According to Robert Sternberg's three components of love, which component addresses the physical aspects?
   **a.** intimacy
   **b.** passion
   **c.** commitment
   **d.** concern
5. According to Sternberg, when all three components of love are present, a couple possesses _____ love.
   **a.** romantic
   **b.** passionate
   **c.** companionate
   **d.** consummate

12.1 12.2 12.3 12.4 12.5 12.6 12.7 12.8 12.9 12.10 12.11 12.12 12.13

12.11 12.12

Explore the Concept at MyPsychLab

## Social Interaction: (continued) Aggression and Prosocial Behavior

CONCEPT MAP

- **aggression** occurs when one person verbally or physically hurts or tries to destroy another person; often the result of frustration
  - aggression may be partly attributed to genetics and can be triggered by variations in brain function (i.e., amygdala activation) and internal or external chemical influences (e.g., testosterone, alcohol)
  - much of aggression is influenced by learning but not totally deterministic
    - partially explained by social learning theory—social roles (expected behavior in particular social situation) determine much of behavior (e.g., Zimbardo's Stanford Prison study)
    - childhood exposure to abuse does not necessarily mean that one will grow up to be an abuser
    - short-term exposure to violent media (video games, television, movies) has been correlated with increases in both physical and verbal aggression and aggressive thoughts and emotions
- prosocial, or socially desirable, behavior benefits others
  - **altruism:** helping someone with no expectation of reward and often at personal risk
  - can be influenced by helper's mood and victim's gender, attractiveness, or "just rewards"; racial and ethnic differences can decrease probability of helping
  - refusal to help another can be negatively affected by the presence of others (bystander effect/diffusion of responsibility) rather than indifference or a lack of sympathy; also influenced by individual's appraisal of situation (see Table 12.3)

### PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. When people are unable to reach a goal, frustration may result, which can ultimately turn into
   **a.** aggression.
   **b.** pain.
   **c.** confusion.
   **d.** depression.
2. Increased levels of aggression in those who drink alcohol may be due to a decrease in what neurotransmitter?
   **a.** dopamine
   **b.** GABA
   **c.** endorphins
   **d.** serotonin
3. Studies of the brain have found that the _____ is influential in the presence of _____ behavior.
   **a.** occipital lobe; aggressive
   **b.** medulla; shy
   **c.** suprachiasmatic nucleus; passive
   **d.** temporoparietal junction; altruistic
4. Which of the following scenarios probably will not result in the bystander effect?
   **a.** You come across someone lying on a busy sidewalk in a large city.
   **b.** You see someone pass out at a concert.
   **c.** You drive past an automobile accident where a crowd has gathered.
   **d.** You come across someone lying on a walking path while you are walking alone at your local nature center.
5. Once a situation has been defined as an emergency, the next step in the decision-making process is
   **a.** noticing.
   **b.** taking action.
   **c.** taking responsibility.
   **d.** planning a course of action.

## Applying Psychology to Everyday Life: Peeking Inside the Social Brain

### 12.13 What is social neuroscience?

As scientists develop better techniques for studying the workings of the brain, researchers in many fields of psychology are able to find the neural bases for human behavior. Social psychology is no exception, and the study of how our bodies and brains work during

13.1 13.2 13.3

Explore the Concept at MyPsychLab

CONCEPT MAP

**personality**
unique way in which each individual thinks, acts, and feels throughout life

## Theories of Personality

**perspectives/theories**
different ways of viewing and explaining personality

- **psychodynamic:** based on work of Freud; primary focus is on role of unconscious mind
- **behavioral and social cognitive views:** focus on the effect of the environment on behavior; based on theories of learning
- **humanistic:** focuses on conscious life experiences and choices
- **trait:** focuses on characteristics themselves, not roots of personality

**basic aspects**

- mind made up of different levels of awareness—conscious, preconscious, and unconscious
- personality stems from interplay and conflict between demands made by the id, restrictions set forth by the superego, and direction by the ego
- disordered behavior is product of constant conflict and anxiety; ego uses unconscious defense mechanisms as ways to manage anxiety/conflict between three parts of personality (see Table 13.1)

**psychosexual stages of personality development**

- id exists at birth; ego and superego develop in childhood
- different erogenous zones are sources of conflict as individual ages; unresolved conflicts result in individuals getting stuck or fixated at that stage
  - **oral**
  - **anal**
  - **phallic**
  - **latency**
  - **genital**

## Psychodynamic Perspective

a group of Freud's students and followers of the psychoanalytic perspective, called the neo-Freudians, modified his theory and altered the focus of psychoanalysis

- **Jung:** believed in both a personal unconscious and a collective unconscious that holds universal human memories called archetypes
- **Adler:** focused on feelings of inferiority and seeking feelings of superiority as opposed to importance of sexuality; birth order also important
- **Horney:** disagreed with concept of penis envy, developed womb envy; rather than sexuality, focused on basic anxiety
- **Erikson:** emphasized social relationships at every stage of life (see Table 8.4)

modern psychodynamic theory maintains focus on unconscious mind, concept of defense mechanisms is still useful

despite several criticisms, Freud's theory still important—first to suggest that personality develops through stages, that we are not always consciously aware of reasons for behavior, and that early life experiences influence who we are later in life

## PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. If you are asked to describe your best friends by explaining how they act, typically feel, and what they think about, you would be describing their
   **a.** temperament. **c.** personality.
   **b.** character. **d.** mood.

2. According to Freud, the _____ mind was the most important determining factor in human behavior and personality.
   **a.** preconscious **c.** conscience
   **b.** conscious **d.** unconscious

3. According to Freud, which part of the personality is totally buried within each individual?
   **a.** ego **c.** id
   **b.** superego **d.** conscience

4. The awakening of sexual curiosity and interest in the genitals is the beginning of what Freud termed the
   **a.** oral stage. **c.** phallic stage.
   **b.** anal stage. **d.** latency stage.

5. Many of Kyle's friends like to dress up on Halloween as devils, vampires, and zombies. According to Carl Jung's theory, what archetype is being expressed?
   **a.** anima **c.** persona
   **b.** animus **d.** shadow

6. Which neo-Freudian believed personality was mostly a product of dealing with anxieties during childhood?
   **a.** Karen Horney **c.** Carl Jung
   **b.** Erik Erikson **d.** Alfred Adler

THINKING CRITICALLY:
What aspects of psychodynamic theory do you think still have relevance in today's world? Was there one neo-Freudian whose theory appealed to you, and if so, why?

13.4 13.5

Explore the Concept at MyPsychLab

CONCEPT MAP

- **behavioral and social cognitive**
  - for behaviorists, personality is a set of learned responses and habits, gained through classical and operant conditioning
  - in social cognitive view, both learning (individual and through imitation of models) and cognitive processes (such as anticipation, judgment, and memory) are important
    - **Bandura:** concept of self-efficacy; believed three factors were important: the environment, the behavior itself, and personal or cognitive experiences from earlier experiences; each affect the other two in a reciprocal way—reciprocal determinism (see Figure 13.2)
    - **Rotter:** theory based on principles of motivation derived from Thorndike's law of effect; personality is set of potential responses to various situations, including one's locus of control (internal vs. external), sense of expectancy, and preference for particular reinforcers.

## Behavioral, Social Cognitive, and Humanistic Perspectives

- **humanistic** referred to as the third force in psychology (after psychoanalysis and behaviorism); based largely on work of Rogers and Maslow
  - **Rogers:** believed that humans are always striving to fulfill their innate capacities and capabilities (self-actualizing tendency)
  - **self-concept** is based on an individual's view of his or her real self and ideal self; when close/similar, people feel capable and competent; when there is mismatch, anxiety and neurotic behavior can occur
  - **self-actualization** is facilitated through positive regard, especially unconditional positive regard
  - when there is congruence between real and ideal selves, one is considered to be fully functioning and capable of reaching the goal of self-actualization

### PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. According to the behavioral theory, personality primarily consists of
   a. unconscious forces.
   b. learned responses.
   c. biologically driven traits.
   d. personal choices.

2. Albert Bandura considers _____ as a person's expectancy of how effective his or her efforts to accomplish a goal will be in any particular circumstance.
   a. self-image
   b. self-esteem
   c. self-awareness
   d. self-efficacy

3. You have walked in late to class and your psychology professor is explaining how one personality theorist sees personality as a relatively stable set of potential responses to various situations. You know immediately that your professor is talking about the theories of
   a. Julian Rotter.
   b. B. F. Skinner.
   c. Albert Bandura.
   d. John Watson.

4. Nina appreciates compliments about her new photography business but really values constructive criticism, as she can then address particular issues. According to Julian Rotter, Nina has a(n)
   a. strong self-concept.
   b. real self.
   c. internal locus of control.
   d. external locus of control.

5. What did Carl Rogers mean by the term "fully functioning person"?
   a. Someone who is working to discover his or her real self.
   b. Someone who is working to discover his or her ideal self.
   c. Someone who is experiencing a match between his or her real and ideal self, and who is also trusting of their innermost intuitions and urges.
   d. Someone who has discovered his or her self-efficacy.

THINKING CRITICALLY:
Some psychologists theorize that individuals with personality disorders act as they do because of the attention they receive, which becomes a form of positive reinforcement. What are your thoughts about such a theory?

13.6

Explore the Concept at MyPsychLab

CONCEPT MAP

- a trait is a consistent, enduring way of thinking, feeling, or behaving; trait theories attempt to describe personality in terms of a person's traits
  - **Allport:** believed there were 200 traits that were wired into the nervous system to guide a person's behavior
    - **Cattell:** developed concept of surface traits and source traits; identified 16 source traits through factor analysis (later suggested 23); developed assessment questionnaire to identify original 16 trait dimensions (16PF)
      - several groups' work resulted in the **five-factor model** (Big Five, OCEAN)—openness, conscientiousness, extraversion, agreeableness, neuroticism (see Table 13.2)
        - Mischel and others have suggested that there is a trait–situation interaction; there is evidence of the Big Five trait dimensions across various cultures

**Trait Theories**

Practice **quiz** How Much Do You Remember? ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. Trait theories are less concerned with _____ and more concerned with _____.
   a. changing personality; predicting personality
   b. describing personality; explaining personality development
   c. predicting personality; changing personality
   d. predicting behavior; changing personality
2. A colleague at work is asked to describe you to the new manager. Most likely, the traits they will use in their description are examples of
   a. common traits.
   b. cardinal traits.
   c. source traits.
   d. surface traits.
3. Cattell's research and use of factor analysis essentially scaled down many, many different ways of describing aspects of personality into _____ source traits.
   a. 10
   b. 16
   c. 5
   d. 2
4. In the Big Five theory of personality, "E" stands for
   a. empathy.
   b. energy.
   c. external.
   d. extraversion.

THINKING CRITICALLY:
With regard to surface and source traits, what aspects of your personality are consistent between the two? Are you aware of any surface traits that when first seen by others, may not be a true representation of your source traits?

## The Biology of Personality: Behavioral Genetics

13.7 **What part do biology, heredity, and culture play in personality?**

What about genetics? How much of our personality is inherited?

The field of **behavioral genetics** is devoted to the study of just how much of an individual's personality is due to inherited traits. Animal breeders have known for a long time that selective breeding of certain animals with specific desirable traits can produce changes not only in size, fur color, and other physical characteristics but also in the temperament of the animals (Isabel, 2003; Trut, 1999). As stated earlier in this chapter, temperament consists of the characteristics with which each person is born and is, therefore, determined by biology to a great degree. If the temperaments of animals can be influenced by manipulating patterns of genetic inheritance, then it is only one small step to

she really is. If several of the validity scale questions are answered in this way, the conclusion is that the person is not being honest.

**PROBLEMS WITH PERSONALITY INVENTORIES** The advantage of personality inventories over projective tests and interviews is that inventories are standardized (i.e., everyone gets exactly the same questions and the answers are scored in exactly the same way). In fact, responses to inventories are often scored on a computer. Observer bias and bias of interpretation are simply not possible, because this kind of assessment is objective rather than subjective. The validity and reliability of personality inventories are generally recognized as being greatly superior to those of projective tests (Anastasi & Urbina, 1997).

There are some problems, however. The validity scales, for example, are a good check against cheating, but they are not perfect. Some people are still able to fake their answers and respond in what they feel are the socially appropriate ways (Anastasi & Urbina, 1997; Hicklin & Widiger, 2000). Despite the best intentions of the test creators, individual responses to specific questions may also vary as they may be interpreted in different ways by different individuals, and are very likely to be subject to cultural influences (Kagan, 2010). Other problems have to do with human nature itself: Some people may develop a habit of picking a particular answer rather than carefully considering the statement, whereas others may simply grow tired of responding to all those statements and start picking answers at random. **Watch** the **Video**, *Thinking Like a Psychologist: Measuring Personality,* at **MyPsychLab**

13.7 13.8

**Explore** the **Concept** at **MyPsychLab**

CONCEPT MAP

## Personality: Biological Roots and Assessment

**biology of personality**

- behavioral genetics studies how much of an individual's personality is due to inherited traits
- identical twins are more similar than fraternal twins or unrelated people in many facets of personality
- adoption studies of twins have confirmed that genetic influences account for a great deal of personality development, regardless of shared or nonshared environments
- personality factors of the five-factor model have nearly a 50% rate of heritability across cultures; variations in personality are about 25–50% inherited

**personality assessment** can be assessed through various methods, based on perspective endorsed

- **interview:** largely self-report through unstructured or semistructured interview; problems—people can lie or interviewer can be biased (halo effect)
- **projective tests:** ambiguous visual stimuli are used and clients are asked to describe what they see, unconscious concerns or fears are "projected" onto stimulus (e.g., Rorschach Inkblot Test and TAT); problems—nature of tests result in possible subjectivity in interpretation; reliability is suspect
- **behavioral assessments:** direct observation is used to quantify behavior through rating scales and frequency counts; problems—observer bias and lack of environmental control
- **personality inventories:** standard list of questions, often with "yes/true" or "no/false" answers, typically more objective and reliable, many have validity and reliability scales built in; problems—still able to provide false answers and, although difficult, can "fake bad" or "fake good"
  - NEO-PI-R
  - MBTI
  - MMPI-2

see Table 13.3

14.1 14.2 14.3

Explore the Concept at MyPsychLab

## CONCEPT MAP

- **what is abnormality?**
  - **psychopathology** is the study of abnormal behavior and psychological dysfunction; mental illness has been defined in various ways throughout history (e.g., possession, evil spirits, bodily imbalances)
  - current definitions of abnormality are based on several factors
    - **statistical or social norm deviance**
    - **subjective discomfort**
    - **inability to function normally**
  - disorders vary according to culture; cultural sensitivity and relativity are necessary in diagnosing and treating psychological disorders
  - overall, psychological disorders are any pattern of behavior or thinking that causes significant distress, causes people to harm themselves or others, or harms their ability to function in daily life

### Psychological Disorders

- **models of abnormality**
  explanations for disordered thinking or behavior depend on theoretical model used to explain personality in general
  - **biological model:** proposes that psychological disorders have a biological or medical cause; the medical model also influences approaches to diagnosis, treatment, and possible outcomes for a given disorder
  - **psychological models:** propose that disorders are the result of various forms of emotional, behavioral, or thought-related malfunctioning
    - **psychodynamic**
    - **behavioral**
    - **cognitive**
  - **sociocultural perspective:** thinking and behavior are the products of family, social, and cultural influences; what is normal in one culture may be abnormal in another
  - **biopsychosocial perspective:** incorporates biological, psychological, and sociocultural factors

- ***Diagnosing and Classifying Disorders***
  - the *Diagnostic and Statistical Manual of Mental Disorders (DSM)* was first published in 1952, current version *(DSM-5)* published in 2013
  - describes and provides diagnostic criteria for approximately 250 different psychological disorders
  - in general, approximately 26% of adults over age 18 in the United States suffer from a mental disorder (see Table 14.1)

## PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. How would the Greek physician Hippocrates have typically dealt with someone suffering from mental illness?
   **a.** He would have made a hole in the patient's skull to release the pressure, a process known today as trephining.
   **b.** He would focus on correcting the imbalance of bodily fluids, or humors.
   **c.** He would have someone conduct the religious ritual known as an exorcism.
   **d.** He would have tried to understand the person's unconscious and the forces at work there.

2. Lisa has just been fired from her new job for consistently arriving 2 hours late for work. Lisa tries to explain that she must often drive back home to ensure that all the doors are locked and that no appliances have been left on. Lisa's condition is abnormal from the _____ definition.
   **a.** maladaptive
   **b.** situational context
   **c.** social deviance
   **d.** subjective discomfort

3. In the United States, insanity is a term typically used by
   **a.** psychologists.
   **b.** psychiatrists.
   **c.** the social work system.
   **d.** the legal system.

4. Elliot became widowed after nearly 40 years of marriage. He has convinced himself that no one will ever love him again. His irrational thinking has caused him to suffer from depression, and he rarely leaves his house. What perspective might best explain his behavior?
   **a.** psychodynamic
   **b.** cognitive
   **c.** behavioral
   **d.** biological

5. Which of the following concepts is not specifically associated with the DSM-5 examination of culture-related disorders?
   **a.** cultural syndrome
   **b.** cultural idioms of distress
   **c.** cultural explanations or perceived cause
   **d.** cultural binding

THINKING CRITICALLY:
In today's growing technological age, can you think of any new criteria that should be considered in defining abnormal behavior or thinking?

mania typically affect the levels of these three neurotransmitters, either alone or in combination (Cohen, 1997; Cummings & Coffey, 1994; Ruhe et al., 2007).

Genes also play a part in these disorders. The fact that the more severe mood disorders are not a reaction to some outside source of stress or anxiety but rather seem to come from within the person's own body, together with the tendency of mood disorders to appear in genetically related individuals at a higher rate, suggests rather strongly that inheritance may play a significant part in these disorders (Barondes, 1998; Farmer, 1996). It is possible that some mood disorders share a common gene, but actual rates vary. For example, genetic risks are higher in bipolar disorder as compared to unipolar depression (Hyman & Cohen, 2013; McMahon et al., 2010). More than 65 percent of people with bipolar disorder have at least one close relative with either bipolar disorder or major depression (Craddock et al., 2005; National Institute of Mental Health Genetics Workgroup, 1998; Sullivan et al., 2000). Twin studies have shown that if one identical twin has either major depression or bipolar disorder, the chances that the other twin will also develop a mood disorder are about 40 to 70 percent (Muller-Oerlinghausen et al., 2002).

14.4 14.5

Explore the Concept at MyPsychLab

CONCEPT MAP

## Disorders of Anxiety, Trauma, Stress, and Mood

**anxiety, OCD, trauma and stress disorders**
most dominant symptom is excessive or unrealistic anxiety, or related to traumatic stress

- anxiety can be free-floating (nonspecific, anxious in general) or more specific, as in the case of phobias
  - **social anxiety disorder (social phobia)**
  - specific phobias (e.g., **claustrophobia, acrophobia)**
  - **agoraphobia**
- **panic disorder** consists of an individual having recurrent panic attacks that cause ongoing worry and concern
- **generalized anxiety disorder** involves excessive worry about lots of things and occurs more days than not
- **obsessive-compulsive disorder (OCD)** consists of recurring anxiety-provoking thoughts or obsessions that are only relieved through ritualistic or repetitive behaviors or mental events
- **acute stress disorder (ASD)**
- **posttraumatic stress disorder (PTSD)**
  - caused by significant and traumatic stressors; diagnosis differs according to duration and onset of symptoms, including dissociation, nightmares, and reliving the event.
- causes
  - **behavioral:** anxious behavioral reactions are learned
  - **cognitive:** anxiety is result of illogical, irrational thought processes
    - **magnification**
    - **all-or-none thinking**
    - **overgeneralization**
    - **minimization**
  - **biological:** anxiety is due to dysfunction in several neurotransmitter systems (e.g., serotonin, GABA) and/or difference in brain activation; panic disorder is also hereditary
  - **cultural:** anxiety disorders found around the world but particular forms vary across cultures

**mood disorders**
involve a disturbance in mood or emotion; can be mild or severe

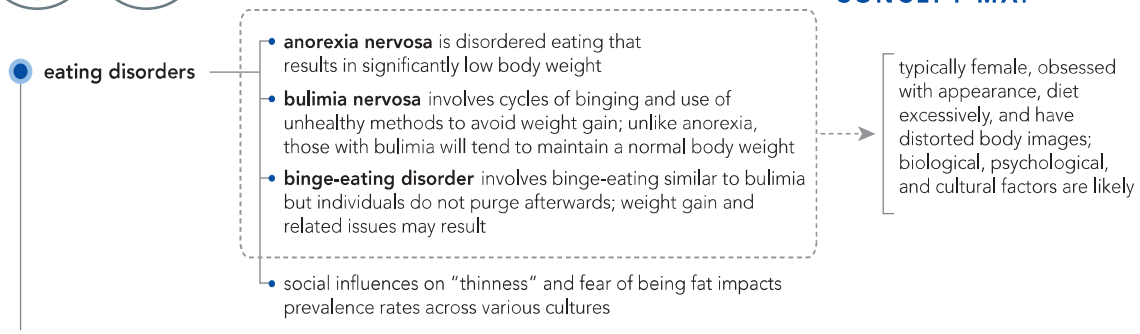
- **major depressive disorder:** deeply depressed mood; most commonly diagnosed mood disorder, twice as common in women
- **bipolar disorders:** experience of mood from normal to manic, possibly with episodes of depression, or the experience of normal mood interrupted by episodes of depression and hypomania
- causes
  - **psychodynamic:** depression is repressed anger originally aimed at parents or other authority figures
  - **behavioral:** depression is linked to learned helplessness
  - **social cognitive:** distorted thinking and negative, self-defeating thoughts
  - **biological:** variation in neurotransmitter systems (e.g., serotonin, norepinephrine, dopamine) or specific brain activity; genes and heritability also play a part

(continued)

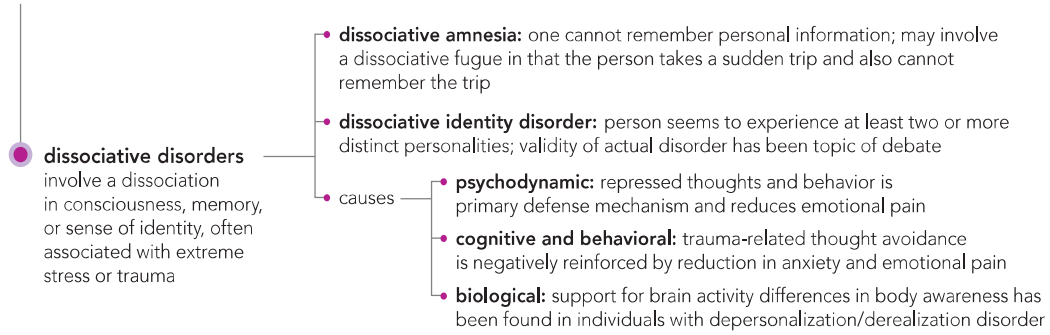
14.6 14.7

Explore the Concept at MyPsychLab

## CONCEPT MAP


eating disorders
anorexia nervosa is disordered eating that results in significantly low body weight
bulimia nervosa involves cycles of binging and use of unhealthy methods to avoid weight gain; unlike anorexia, those with bulimia will tend to maintain a normal body weight
binge-eating disorder involves binge-eating similar to bulimia but individuals do not purge afterwards; weight gain and related issues may result
typically female, obsessed with appearance, diet excessively, and have distorted body images; biological, psychological, and cultural factors are likely
social influences on "thinness" and fear of being fat impacts prevalence rates across various cultures

## Eating and Dissociative Disorders


dissociative disorders
involve a dissociation in consciousness, memory, or sense of identity, often associated with extreme stress or trauma
dissociative amnesia: one cannot remember personal information; may involve a dissociative fugue in that the person takes a sudden trip and also cannot remember the trip
dissociative identity disorder: person seems to experience at least two or more distinct personalities; validity of actual disorder has been topic of debate
causes
psychodynamic: repressed thoughts and behavior is primary defense mechanism and reduces emotional pain
cognitive and behavioral: trauma-related thought avoidance is negatively reinforced by reduction in anxiety and emotional pain
biological: support for brain activity differences in body awareness has been found in individuals with depersonalization/derealization disorder

## PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. Olivia is a teenager who has been diagnosed with anorexia nervosa. What percentage of individuals with anorexia that receive treatment make a recovery?
   a. 40 to 60 percent
   b. 70 to 80 percent
   c. 80 to 90 percent
   d. approximately 95 percent

2. Which of the following characteristics best describes differences between bulimia nervosa and anorexia nervosa?
   a. Individuals with anorexia do not have as severe health risks that individual with bulimia have.
   b. Individuals with bulimia may have a normal body weight whereas those with anorexia tend to be severely under their expected body weight.
   c. Individuals with anorexia have been known to binge like those with bulimia on occasion.
   d. Anorexia tends to occur in early adulthood while bulimia often starts in early adolescence.

3. Researchers believe that 40 to 60 percent of the risk for anorexia, bulimia, and binge-eating disorder are due to
   a. genetic factors.
   b. hormonal factors.
   c. environmental factors.
   d. psychological factors.

4. What is the major difference between dissociative amnesia and retrograde amnesia?
   a. Retrograde amnesia patients often suffer from some form of physical brain trauma.
   b. Individuals suffering from dissociative amnesia often have a history of memory loss that seems to be hereditary.
   c. Those suffering from dissociative amnesia have prior damage to the brain, which in turn causes memory loss.
   d. Retrograde amnesia patients often have suffered from painful psychological trauma.

5. Franklin wakes up on a cot in a homeless shelter in another town. He doesn't know where he is or how he got there, and he's confused when people say he has been calling himself Anthony. This is most likely an episode of dissociative
   a. amnesia.
   b. amnesia with fugue.
   c. identity disorder.
   d. multiple personality.

6. Dr. Cowden believes that Jamison's dissociation disorder may be due to his apparent enhanced ability to think about things other than those associated with his traumatic childhood. What psychological perspective is Dr. Cowden applying?
   a. psychodynamic perspective
   b. biological perspective
   c. cognitive/behavioral perspective
   d. evolutionary perspective

THINKING CRITICALLY:
How might the proliferation of various media and the Internet affect the development of eating disorders in cultures not previously impacted by them?

biological parents had antisocial personality disorder show an increased risk for that disorder in those children, even though raised in a different environment by different people (American Psychiatric Association, 2013). A longitudinal study has linked the temperaments of children at age 3 to antisocial tendencies in adulthood, finding that those children with lower fearfulness and inhibitions were more likely to show antisocial personality characteristics in a follow-up study at age 28 (Glenn et al., 2007).

Other causes of personality disorders have been suggested. Antisocial personalities are emotionally unresponsive to stressful or threatening situations when compared to others, which may be one reason that they are not afraid of getting caught (Arnett et al., 1997; Blair et al., 1995; Lykken, 1995). This unresponsiveness seems to be linked to lower than normal levels of stress hormones in antisocial persons (Fairchild et al., 2008; Lykken, 1995).

Disturbances in family relationships and communication have also been linked to personality disorders and, in particular, to antisocial personality disorder (Benjamin, 1996; Livesley, 1995). Childhood abuse, neglect, overly strict parenting, overprotective parenting, and parental rejection have all been put forth as possible causes, making the picture of the development of personality disorders a complicated one. It is safe to say that many of the same factors (genetics, social relationships, and parenting) that help to create ordinary personalities also create disordered personalities.

14.8 14.9

Explore the Concept at MyPsychLab

CONCEPT MAP

## Schizophrenia and Personality Disorders

**schizophrenia**
psychotic disorder involving a break with reality and disturbances in thinking, emotions, behavior, and perceptions

- primary symptoms are often classified as positive (in excess or in addition to normal functions) or negative (absence or decrease in normal functions)
  - **delusions:** false beliefs about the world (e.g., delusions of persecution, delusions of grandeur, delusions of reference)
  - **disturbed or disorganized thoughts:** often lacking structure or relevance, most often displayed through disorganized speech
  - **hallucinations:** can occur in any sensory modality but auditory hallucinations are most common
  - **changes in mood:** including flat affect (displaying little or no emotion)
  - **disorganized or odd behavior:** ranging from periods of immobility to odd gesturing or facial grimaces; wildly excessive movement or total lack thereof is called catatonia
- causes
  - positive symptoms appear to be associated with overactivity of dopamine areas of brain; negative with lower dopamine activity; related to dopamine hypothesis
  - genetics and brain structural defects have been implicated
  - biological roots supported by universal lifetime prevalence across cultures of approximately 7–8 people out of 1,000; genetics supported by twin and adoption studies
  - **stress-vulnerability model:** suggests people with genetic markers for schizophrenia will not develop the disorder unless they are exposed to environmental or emotional stress at critical times in development

**personality disorders**
involve excessively rigid and maladaptive patterns of behavior and ways of relating to others

- **antisocial personality disorder:** minimal to no regard for value of others' rights or feelings; more common in men
- **borderline personality disorder:** relationships with others that are intense and unstable; often moody, manipulative, and untrusting of others; more common in women
- causes
  - **psychodynamic:** inadequate resolution of Oedipus complex
  - **cognitive-behavioral:** specific behaviors learned over time, associated with maladaptive belief systems
  - genetic factors play a role, with many showing increased rates of heritability
  - variances in stress tolerance and disturbances in family relationships and communication have also been linked to personality disorders

(continued)

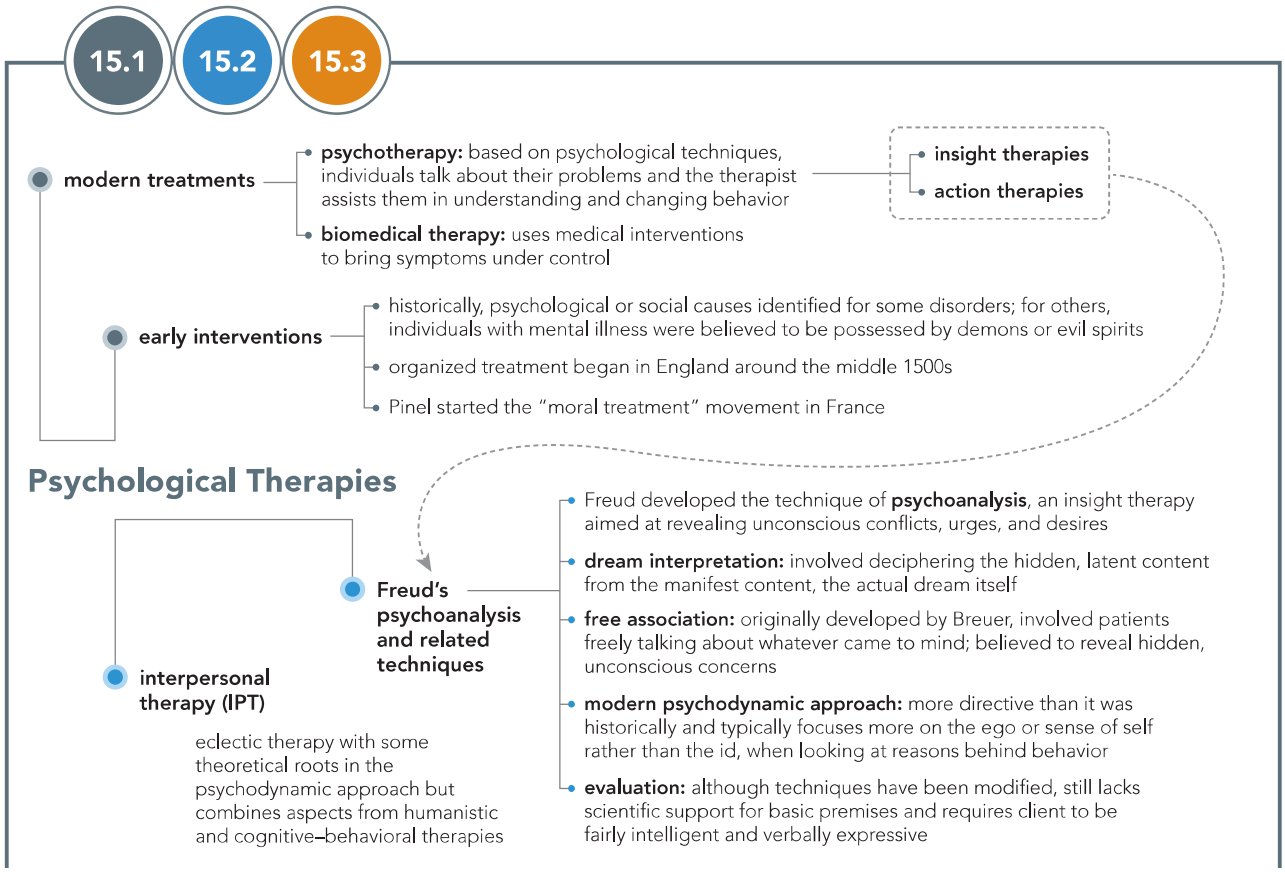
In Gestalt therapy, it is not unusual to find a client talking to an empty chair. The chair represents some person from the past with whom the client has unresolved issues, and this is the opportunity to deal with those issues.

chair to reveal their true feelings toward the person represented by the chair or take on the role of a parent or other person with whom they have a conflict so that the clients can see things from the other person's point of view. The Gestalt therapist pays attention to body language as well as to the events going on in the client's life at the time of therapy. Unlike psychoanalysis, which focuses on the *hidden past*, Gestalt therapy focuses on the *denied past*. Gestalt therapists do not talk about the unconscious mind. They believe everything is conscious but that it is possible for some people to simply refuse to "own up" to having certain feelings or to deal with past issues. By looking at the body language, feelings both stated and unstated, and the events in the life of the client, the therapist gets a *gestalt*—a whole picture—of the client.

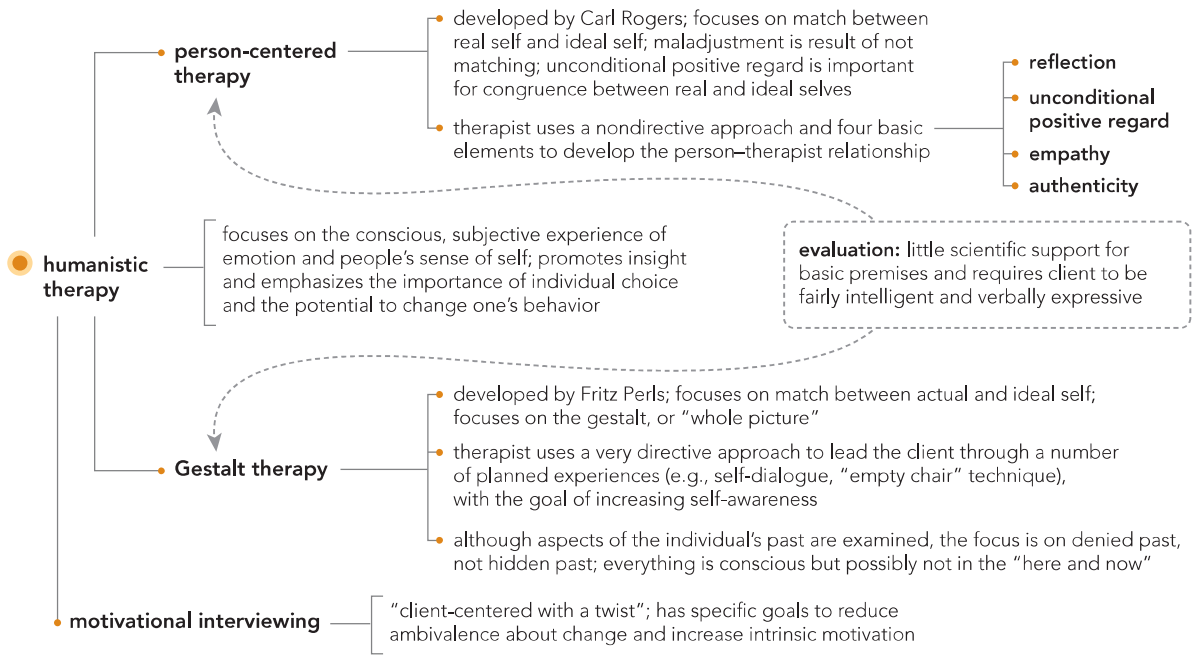
## EVALUATION OF THE HUMANISTIC THERAPIES

Humanistic therapies have been used to treat psychological disorders, help people make career choices, deal with workplace problems, and counsel married couples. Person-centered therapy in particular can be a very "hands-off" form of therapy because it is so nondirective: Most often, there's nothing that the therapist says that the client has not already said, so the therapist runs a lower risk of misinterpretation. However, omission or not reflecting some things back might be a source of error.

Unfortunately, humanistic therapies have several of the same drawbacks as Freudian psychoanalysis and other forms of modern psychodynamic therapy. There is little experimental research to support the basic ideas on which this type of therapy is founded, but humanists have always preferred to use case studies to build their theories. People must be intelligent, verbal, and able to express their thoughts, feelings, and experiences in a logical manner, which makes humanistic therapies a somewhat less practical choice for treating the more serious mental disorders such as schizophrenia.


15.1
15.2
15.3
modern treatments
psychotherapy: based on psychological techniques, individuals talk about their problems and the therapist assists them in understanding and changing behavior
insight therapies
action therapies
biomedical therapy: uses medical interventions to bring symptoms under control
early interventions
historically, psychological or social causes identified for some disorders; for others, individuals with mental illness were believed to be possessed by demons or evil spirits
organized treatment began in England around the middle 1500s
Pinel started the "moral treatment" movement in France
Psychological Therapies
Freud's psychoanalysis and related techniques
Freud developed the technique of psychoanalysis, an insight therapy aimed at revealing unconscious conflicts, urges, and desires
dream interpretation: involved deciphering the hidden, latent content from the manifest content, the actual dream itself
free association: originally developed by Breuer, involved patients freely talking about whatever came to mind; believed to reveal hidden, unconscious concerns
modern psychodynamic approach: more directive than it was historically and typically focuses more on the ego or sense of self rather than the id, when looking at reasons behind behavior
evaluation: although techniques have been modified, still lacks scientific support for basic premises and requires client to be fairly intelligent and verbally expressive
interpersonal therapy (IPT)
eclectic therapy with some theoretical roots in the psychodynamic approach but combines aspects from humanistic and cognitive–behavioral therapies

## Psychological Therapies (continued)


person-centered therapy
developed by Carl Rogers; focuses on match between real self and ideal self; maladjustment is result of not matching; unconditional positive regard is important for congruence between real and ideal selves
therapist uses a nondirective approach and four basic elements to develop the person–therapist relationship
reflection
unconditional positive regard
empathy
authenticity
humanistic therapy
focuses on the conscious, subjective experience of emotion and people's sense of self; promotes insight and emphasizes the importance of individual choice and the potential to change one's behavior
evaluation: little scientific support for basic premises and requires client to be fairly intelligent and verbally expressive
Gestalt therapy
developed by Fritz Perls; focuses on match between actual and ideal self; focuses on the gestalt, or "whole picture"
therapist uses a very directive approach to lead the client through a number of planned experiences (e.g., self-dialogue, "empty chair" technique), with the goal of increasing self-awareness
although aspects of the individual's past are examined, the focus is on denied past, not hidden past; everything is conscious but possibly not in the "here and now"
motivational interviewing
"client-centered with a twist"; has specific goals to reduce ambivalence about change and increase intrinsic motivation

### PRACTICE quiz How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

*Pick the best answer.*

1. One of the first therapists to begin a movement towards the humane treatment of patients was
   **a.** Robert Fleury.
   **b.** Philippe Pinel.
   **c.** Sigmund Freud.
   **d.** Josef Breuer.
2. Psychotherapies that attempt to increase the understanding of a client's motives are known as _____ therapies.
   **a.** insight
   **b.** action
   **c.** biomedical
   **d.** psychoanalytic
3. Although the term may apply to many therapies, transference is typically associated with _____ therapies.
   **a.** behavioral
   **b.** humanistic
   **c.** biomedical
   **d.** psychodynamic
4. Motivational interviewing is an alternative therapy to what therapeutic approach?
   **a.** psychodynamic therapy
   **b.** Gestalt therapy
   **c.** humanistic therapy
   **d.** group therapy
5. Dr. Ellington is directive in his approach with clients. He pays close attention to body language and often focuses on a client's denied past. What type of therapeutic approach is Dr. Ellington using?
   **a.** humanistic approach
   **b.** Gestalt approach
   **c.** group approach
   **d.** behavioral approach
6. Which of the following cases would a humanistic approach probably be LEAST effective in treating?
   **a.** Leilani, a university professor who has feelings of inadequacy
   **b.** Kayla, a professional musician who feels worthless and suffers from depression
   **c.** Miranda, a corporate executive who suffers from marked delusions and active auditory hallucinations
   **d.** Felicia, a homemaker who suffers from the traumatic memories of her abusive childhood

THINKING CRITICALLY:
Which of the forms of psychotherapy discussed so far would probably work best for a client who has commitment issues in relationships? Why?

some people may be reluctant to speak freely. An extremely shy person may initially have great difficulty speaking up in a group setting, but cognitive–behavioral group therapy can be effective for social anxiety disorder (Heimberg & Becker, 2002; Turk et al., 2008). People with psychiatric disorders involving paranoia that is not well controlled, such as schizophrenia, may not be able to tolerate group-therapy settings.

A survey and comparison of the effectiveness of both individual and group therapy found that group therapy is only effective if it is long term and that it is more effective when used to promote skilled social interactions rather than as an attempt to decrease the more bizarre symptoms of delusions and hallucinations (Evans et al., 2000). It is also important to note that group therapy can be used in combination with individual and biomedical therapies.



## Action Therapies

- **behavior therapies** action-based therapies operating on the premise that all behaviors, both normal and abnormal, are learned; applied behavior analysis involves functional analysis and learning techniques to increase desirable behaviors and decrease undesirable behaviors
  - techniques based on classical conditioning—pairing of stimuli
    - **systematic desensitization**
    - **aversion therapy**
    - **exposure therapies:** expose individual to anxiety-provoking stimulus in real or imagined form, in a gradual or sudden (**flooding**) manner
  - techniques based on operant conditioning—reinforcement, extinction, shaping, and modeling
    - **participant modeling**
    - **token economies (reinforcement)**
    - **contingency contracting (reinforcement)**
    - **time-out (extinction)**
  - **evaluation:** more effective than others for specific behavioral problems (e.g., bed-wetting, overeating, drug addictions, phobic reactions)

- **cognitive therapies** action-based therapies that focus on helping people change their ways of thinking; emphasis on identifying distorted and unrealistic beliefs that lead to maladaptive behavior and problem emotions and then replacing them with more-positive, helpful thoughts
  - **Beck's cognitive therapy** identifies several common distortions
    - **arbitrary inference (jumping to conclusions)**
    - **selective thinking**
    - **overgeneralization**
    - **magnification and minimization**
    - **personalization**
  - **cognitive–behavioral therapy (CBT)** uses cognitive methods that have behavioral elements within them as well
  - **rational emotive behavior therapy (REBT)** was developed by Albert Ellis; teaches clients to challenge their own irrational beliefs with more-rational, helpful statements
  - **evaluation:** typically shorter and less expensive than insight therapies; treating the symptom, not the cause, is both a feature and a criticism; especially effective for many disorders, including depression, anxiety disorders, and personality disorders

## Group Therapies

- alternative to individual therapy; group of clients meet together to discuss similar problems with a single therapist or pair of therapists
  - may use a variety of styles, but person-centered, Gestalt, and behavioral seem to work best; may also take several different forms
    - **family therapy**
    - **problem-based groups**
- **self-help groups** may also be effective; do not have a therapist directly involved
- **evaluation:** advantages include lower cost, exposure to ways other people view and handle same type of problems, social and emotional support; disadvantages include greater exposure, less one-on-one contact with therapist, and some problems hard to treat in group setting

Letter, 2010; Huff et al., 2010). Exciting research is also investigating the use of DBS for individuals with chronic anorexia nervosa who have not responded well to other treatments, with initial results suggesting some individuals have improved body mass index (BMI), mood, and anxiety symptoms after DBS treatment (Lipsman et al., 2013).



15.7 15.8 15.9

- effectiveness is not easy to study due to different theories, techniques, time frames for success, etc.; tendency of some therapists to be eclectic (using variety of techniques) is also a challenge
  - common factors approach: focuses on those factors common to successful outcomes from different forms of therapy
  - clients benefit through evidence-based practice, or empirically validated treatment—identification of treatments and other aspects of treatment that work best for specific disorders
- where effective, greater success is often tied to the relationship between the therapist and client (therapeutic alliance), a sense of safety, and longer time in therapy
- cultural, ethnic, and gender concerns should also be examined; these factors can affect not only the therapeutic alliance but also identification of actual problem(s) and treatment options

## Does Psychotherapy Work?

## Biomedical Therapies

- **psychopharmacology** the use of drugs to control or relieve the symptoms of a psychological disorder; may be used alone or in combination with other therapies (see Table 15.3)
  - **antipsychotic drugs:** treat psychotic symptoms such as hallucinations, delusions, and bizarre behavior; include the typical antipsychotics, atypical antipsychotics, and partial dopamine agonists; work by blocking certain dopamine receptors in the brain; long-term use has variety of risks, both behavioral and cognitive
  - **antianxiety drugs:** address anxiety and related disorders; include the minor tranquilizers (benzodiazepines) that have a sedative effect—also have potential for addiction and abuse; antidepressant drugs also used to treat anxiety disorders
  - **antimanic drugs:** address the manic episodes associated with bipolar disorder; most common is lithium; may also include anticonvulsants and antidepressants
  - **antidepressant drugs:** are used to treat symptoms of depression and include monoamine oxidase inhibitors (MAOIs), tricyclic antidepressants, and selective serotonin reuptake inhibitors (SSRIs)
- **electroconvulsive therapy**
  - still used to treat severe depression and a few other disorders that have not responded to other forms of treatment
  - involves the application of an electric shock and resulting seizure that appears to normalize the balance of neurotransmitters within the brain
  - traditional side effects (extreme memory loss, broken bones) have been minimized by lower levels of current and the use of both muscle relaxers and anesthesia
- **psychosurgery**
  - used as a last resort, involves cutting into the brain to remove or destroy brain tissues associated with symptoms of a mental disorder
  - prefrontal lobotomies were widely used in the mid-1900s up until the development of antipsychotic drugs
  - at present, bilateral anterior cingulotomy (involves selective areas of cingulate gyrus) is used, primarily for obsessive-compulsive disorder; has also been used with depression and bipolar disorder
- **emerging technologies**
  - repetitive transcranial magnetic stimulation (rTMS)
  - transcranial direct current stimulation (tDCS)

  → being evaluated as treatment options for PTSD and depression, and other disorders
  - deep brain stimulation (DBS) for depression and OCD

(continued)